Project A-848

ANALYSIS OF ECONOMIC FORECASTS AND LAND USE REQUIREMENTS FOR SAVANNAH AND CHATHAM COUNTY, GEORGIA

Prepared for

The Chatham County-Savannah Metropolitan Planning Commission

by

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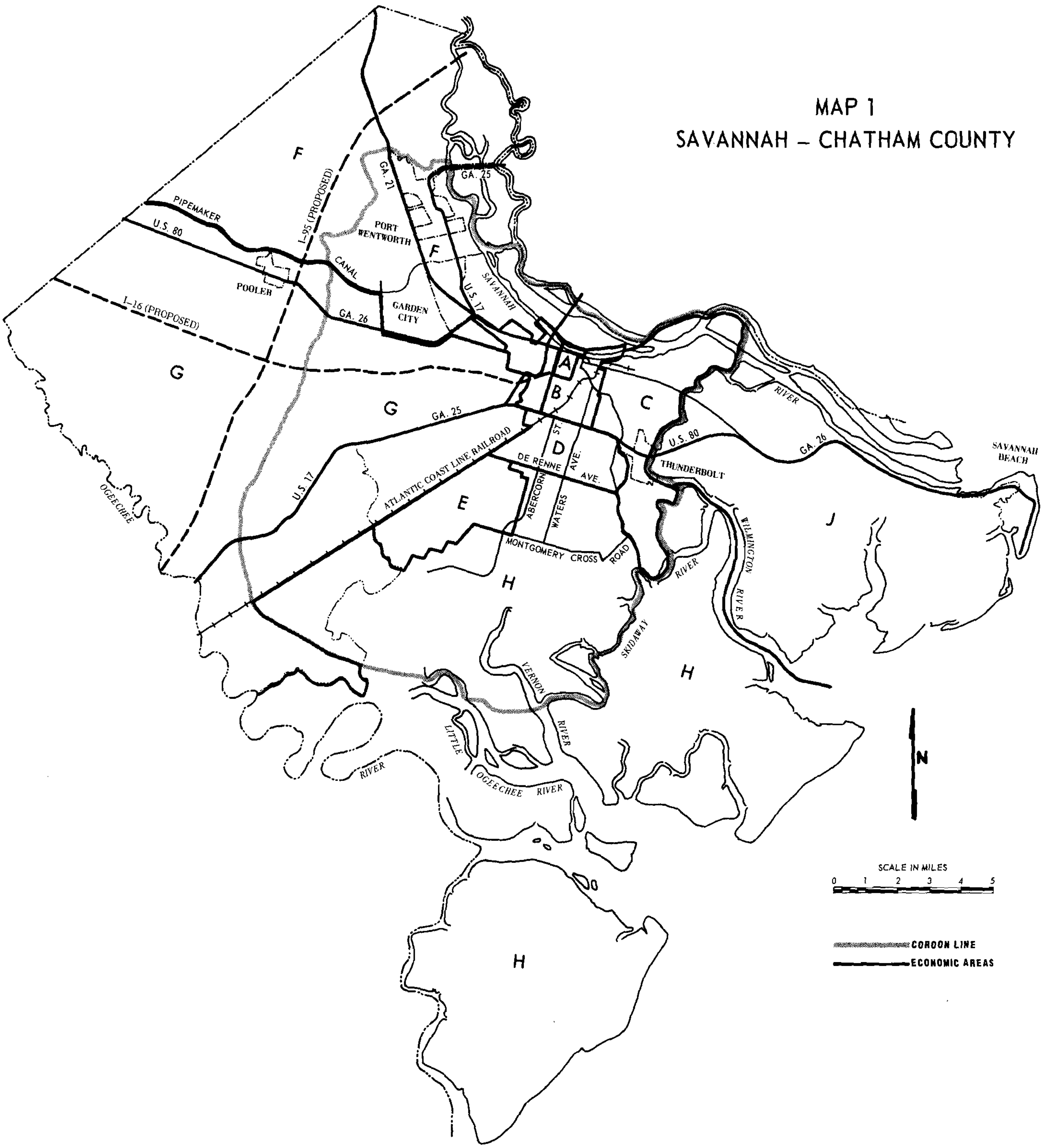
MAP 1
SAVANNAH – CHATHAM COUNTY



Source: Chatham County – Savannah Metropolitan Planning Commission, Savannah, Georgia.

GENERAL OUTLINE OF THE NINE ECONOMIC AREAS

Area A encompasses what is generally considered Savannah's Central Business District. It is bordered by the Savannah River on the north, Gaston Street on the south, West Broad Street on the west, and Price Street on the east.

Area B borders on the west, south and east sides of Area A. The outside of Area B generally is the Savannah River on the north on both sides of Area A; Ash Street, Jones Canal, and Bilbo Sewer on the east; Victory Drive on the south; and Springfield Canal, Gwinnett Street, and Savannah's city limit line on the west.

Area C is encompassed on the north by the Savannah River; on the west by Jones Canal, Ash Street, Victory Drive, Placentia Canal, and La Roche Avenue; on the south by the Herb River; and on the east by the Wilmington River.

Area D is bordered by Victory Drive on the north; Atlantic Coast Line Railroad, 52nd Street, and Hopkins Street on the west; De Renne Avenue on the south; and Placentia Canal on the east.

Area E covers all of the Hunter Air Force Base area.

Area F is bordered by the Savannah River on the north; the Effingham-Chatham County line on the west; Pipe Makers Canal, Dean Forrest Road, and U. S. Highway 80 on the south; and Savannah's city limit line on the east.

Area G encompasses that area which is surrounded by Pipe Makers Canal, Dean Forrest Road, and U. S. Highway 80 on the north; the Effingham-Chatham County line on the west; the Bryan-Chatham County line on the south; and Rockfish Creek, Grove River, Little Ogeechee River, Atlantic Coast Line Railroad, 52nd Street, Hopkins Street, Victory Drive, Stiles Avenue, Gwinnett Street, and Savannah's city limit line on the east.

Area H is bordered by De Renne Avenue, La Roche Avenue, Herb River, and Wilmington River on the north; Fish Creek, Grove River, and the east side of Area E on the west; the Bryan-Chatham County line on the south; and the Atlantic Ocean on the east.

Area J is bordered by the Savannah River on the north, Wilmington River to the west and south, and the Atlantic Ocean on the east.

INTRODUCTION AND SUMMARY

This report has been prepared for the Chatham County-Savannah Metropolitan Planning Commission in conjunction with the Chatham Urban Transportation Study. It covers the level of economic activity and the land use requirements that can be expected to materialize in Chatham County during the 20-year period between 1965 and 1985, based on the projected population and employment growth of the county.

The report is submitted in two parts. Part I analyzes the major components of the present economy of Savannah and discusses the potential role of the city against the background of regional and national trends; Part II evaluates and projects the requirements for additional space for the various categories of land uses in Chatham County. Included in the Appendices are detailed projections of population, income, income consumption patterns, and nonagricultural employment.

The county was divided into nine economic areas for the purposes of this study; these areas are illustrated on the map on page vi. The cordon line on the map defines the projected 1985 urban limits as set by the Planning Division of the State Highway Department. It should be stressed here that this study covers the entire county, while the Chatham Urban Transportation Study deals only with that area inside the cordon line.

Various pertinent data were analyzed for this study to identify the current characteristics and trends which were used in making the economic forecasts and land use projections. Many interrelated factors were evaluated in making specific projections of Savannah's future, but, of course, no forecasts can be regarded as more than reasonable guide lines on which to base a planning program. The smaller the area considered, the more hazardous such estimates become, and the nine economic areas into which Chatham County was divided for study purposes may develop in different ways from the land use and economic patterns set out in this report.

In Part I, some of the past history of the area is presented in order to reach a better understanding of the forces that have shaped the development of Savannah and that will continue to influence its future economic growth. A dominant factor in both past and future is the port. Closely aligned with the port is the manufacturing complex that developed early in the history of the region, processing and handling the raw materials and goods that flowed to and from the agricultural areas of the Southeast.

A network of towns and cities has now spread across much of the former farmland, and competitive manufacturing centers seek their share of the greatly expanded markets. The port and waterways of Savannah, however, give the city a big advantage over other centers not on navigable waters, and every effort should be made to capitalize on this most important asset. As this report shows, Savannah also has liabilities which help to account for its fluctuating pattern of industrial development. These liabilities, for the most part, can be eliminated or modified by vigorous effort on the part of city and county officials, backed by an informed and interested community. Such efforts, combined with continued priority on the maintenance and development of the port and waterway facilities, should ensure a bright future for Savannah. As the Southeast region continues its industrial growth, Savannah should be able to develop its position as a major manufacturing port of the Atlantic Seaboard.

County-wide projections of population and employment are presented in Part I, giving cumulative totals at the end of each five-year period through 1985. These estimates are broken down by economic areas in the Appendices. The following table summarizes the economic changes forecast for the county between 1965 and 1985:

SUMMARY OF PROJECTED ECONOMIC CHANGES
FOR THE SAVANNAH METROPOLITAN AREA, 1965-1985

	1965	1985	Increase 1965-85
Population	199,500	290,000	90,500
Total Nonagricultural Employment	56,000	87,000	31,000
Manufacturing	15,100	23,500	8,400
Other	40,900	63,500	22,600
Per Capita Income (1959 constant dollars)	$2,199	$3,485	$1,286

Part II presents estimates of the additional space and employees that will be needed between 1965 and 1985 in the various land use categories, above and beyond the current levels of development. These estimates are broken down and distributed among the economic areas in five-year increments, showing the amount of growth that is expected for each five-year period up to 1985.

In the periodic distribution of the space needs in each economic area, due regard was given to existing land use patterns and current trends in each area. The current land use data for the county were prepared by the Chatham County-Savannah Metropolitan Planning Commission, and the projected land use development for each area was discussed with the Commission's staff. In addition to their comments on the future land use estimates, they provided valuable information on projects being planned for the immediate future, such as the street and highway developments, channel dredging and port development, water pollution studies, convention center study, the new hotel-bank-office building development, Jones-Pulaski redevelopment, and urban renewal projects.

Land use projections for economic areas A and E were based on certain specific assumptions which need a word of explanation here. Economic Area A comprises the existing Central Business District of Savannah. Some types of business that are strongly oriented to the downtown area will create heavy demands for space within Savannah's Central Business District. However, there are currently only about 11 acres of developable vacant land within this area. The projected space requirements for Economic Area A have been made on the assumption that some rehabilitation and/or moderate redevelopment will occur or that some of the existing land uses will be upgraded.

At the present time, redevelopment plans for Hunter Air Force Base, Economic Area E, have not been decided. However, it is believed that, regardless of the future ownership of this property, the area does have great potential; therefore, a limited amount of development has been assigned to the area. The study of the economic impact of the closing of Hunter Air Force Base with recommendations for new payrolls and for the redevelopment of Hunter facilities, completed by the Industrial Development Division, Georgia Institute of Technology, in December 1965, was followed in making the land use projections and in determining the amount of space for each type of land use.

A summary of the projected requirements for additional developed space in the county, by major land use category, is given on the following page.

SUMMARY OF ADDITIONAL LAND USE REQUIREMENTS
FOR CHATHAM COUNTY, 1965-1985

Land Use	Projected Space
Residential (acres)	6,865
Industrial (acres)	2,268
Retail (acres)	454
Office Space (square feet)[1/]	1,151,450
Personal Services (square feet)	298,650
Motel-Hotel (acres)	41
Hospital (acres)	42
Institutional (acres)	904
Commercial Recreation (acres)	362

The Industrial Development Division of Georgia Tech wishes to thank the many organizations and individuals who provided information and assistance in the preparation of this report.

1/ An additional 166 acres were projected to meet the space requirements of non-office employees in the government and transportation, communications, and utilities categories.

Part I

THE ECONOMIC STRUCTURE OF METROPOLITAN SAVANNAH

A REVIEW OF SAVANNAH'S ECONOMY

The city of Savannah is located at the mouth of the Savannah River, roughly 18 miles from the Atlantic Ocean. Founded by General Oglethorpe in 1733, Savannah was built on a bluff, with an average elevation of 40 feet above the river. To the east lie salt marshes, wooded areas, and sand-covered islands, and the urban area has developed inland on the plain, which is broken by fingers of marshland and creeks draining into either the Savannah River to the north or into the Ogeechee River which forms the boundary of Chatham County to the south.

Port Traffic

Throughout the 18th and 19th centuries the farm and forest products of the Southeast flowed out from the port of Savannah to the rest of the world, while imports of such commodities as petroleum and raw sugar came in to be refined for distribution to regional and national markets. Warehousing, banking, ship building and repair were natural expansions of the port economy. Cotton ginning, cotton oil processing, and sugar refining operations and companies handling lumber and tobacco grew up around the export center, and other manufacturers developed to supply fertilizer and farm implements to the agricultural areas of the Southeast.

The growth of freight traffic in more recent years is shown in Table 1, where the change in tonnage handled at Savannah between 1929 and 1963 is broken down by major categories.

The most important gain was in foreign imports, with an increase of nearly 1.4 million tons, or 263%, accounting for over 86% of the increase in inbound freight, which nearly doubled during the period. Exports and shipments showed comparatively little growth, with a net gain of only 5%. The increase of nearly a quarter of a million tons in foreign exports, plus a substantial gain in internal shipments, was offset by the loss of over 300,000 tons in coastwise outbound freight.

The types of freight handled showed considerable change during this period. Table 2 gives the major items of inbound tonnage for the two years. The volume of sugar imported is almost unchanged, but, whereas in 1929 it represented one third of all foreign imports, the same tonnage accounted for

Table 1

PORT OF SAVANNAH FREIGHT TRAFFIC, 1929-1963
(in thousands of short tons)

	1929	1963	Change 1929-1963 Tons	Change 1929-1963 Percent
Imports and Receipts				
Foreign	528.2	1,917.6	1,389.4	263
Coastwise	981.7	1,331.1	349.4	36
Internal	157.1	26.9	-130.2	-83
	1,667.0	3,275.6	1,608.6	96
Exports and Shipments				
Foreign	388.9	611.6	222.7	57
Coastwise	383.2	74.5	-308.7	-81
Internal	10.2	132.0	121.8	1,194
	782.3	818.1	35.8	5
Local	25.8	17.1	-8.7	-34
Total	2,475.1	4,110.8	1,635.7	66

Source: Department of the Army, Corps of Engineers, Waterborne Commerce of the United States.

Table 2

PORT OF SAVANNAH MAJOR FOREIGN IMPORT
AND COASTWISE RECEIPT COMMODITIES, 1929 AND 1963

	Tons (000)		Percent of Total	
Foreign Imports	1929	1963	1929	1963
Sugar	173.6	170.1	33	9
Nitrate soda	157.2		30	
Manure salt	51.0		10	
Residual fuel oil		431.1		22
Petroleum crude		162.9		9
Petroleum asphalt		157.8		8
Other petroleum products		125.7		7
Gypsum		222.6		12
Nitrogenous fertilizer materials		122.7		6
Nonferrous ores, metal scrap		112.4		6
Burlap and jute bagging		123.4		6
All other commodities	146.4	288.9	27	15
	528.2	1,917.6	100	100
Coastwise Receipts				
Motor fuel and gasoline	416.3	657.5	42	50
Other petroleum products	232.0	496.7	23	37
All other commodities	333.4	176.9	35	13
	981.7	1,331.1	100	100

Source: Department of the Army, Corps of Engineers, Waterborne Commerce of the United States.

only 9% of the total in 1963. Petroleum products are now the most important of the inbound freight commodities in both foreign imports and coastwise receipts. They also dominated the coastwise receipts in 1929, but the proportion of such products was still higher in 1963.

Similar changes can be seen in the exports and shipments in Table 3. Naval stores and rosin exports dropped by over 50%. In 1929 they represented 31% of total foreign exports, compared with 9% in 1963. Currently the most

Table 3

PORT OF SAVANNAH MAJOR FOREIGN EXPORT AND COASTWISE SHIPMENT COMMODITIES, 1929 AND 1963

	Tons (000)		Percent of Total	
Foreign Exports	1929	1963	1929	1963
Naval stores and rosin	119.7	53.9	31	9
Cotton textiles	102.9		27	
Iron and steel scrap		50.0		8
Wood pulp		134.8		22
Paperboard, except building board		76.9		13
Clays and earths		108.3		18
All other commodities	166.3	187.7	42	30
	388.9	611.6	100	100
Coastwise Shipments				
General merchandise	67.0		17	
Rosin	48.3		12	
Cotton textiles	55.3		14	
Lumber	83.3		22	
Gas oil, distillate fuel oil		34.9		47
Paperboard, except building board		11.9		16
All other commodities	129.3	27.7	35	37
	383.2	74.5	100	100

Source: Department of the Army, Corps of Engineers, Waterborne Commerce of the United States.

important exports are wood pulp, clays and earths, and paperboard (except building board). Total coastwise shipments in 1963 were less than 20% of the 1929 tonnage, with major items in the earlier year becoming negligible in 1963.

The overall gain in tonnage handled at Savannah between 1929 and 1963, although substantial, does not compare favorably with the growth of the nearest major ports of the Atlantic Seaboard. As indicated in Table 4, Wilmington,

Table 4

CHANGES IN FREIGHT TRAFFIC, SOUTH ATLANTIC PORTS, 1929-1963
(in thousands of short tons)

Tons Handled	1929	1953	1958	1963
Wilmington	1,218.8	4,109.1	4,826.6	6,276.4
Charleston	2,680.9	4,020.1	4,359.3	5,295.0
SAVANNAH	2,475.1	3,782.6	4,086.9	4,110.8
Brunswick	1,146.4	218.9	404.8	964.2
Jacksonville	3,306.8	4,992.3	7,736.9	8,220.9
Total	10,828.0	17,123.0	21,414.5	24,867.3
Percentage Handled				
Wilmington	11	24	23	25
Charleston	25	24	20	21
SAVANNAH	23	22	19	17
Brunswick	11	1	2	4
Jacksonville	30	29	36	33
Total	100	100	100	100

	Change 1929-1963		Change 1953-1963	
Change	Tons	Percent	Tons	Percent
Wilmington	5,057.6	415	2,167.3	53
Charleston	2,614.1	98	1,274.9	32
SAVANNAH	1,635.7	66	328.2	9
Brunswick	-182.2	-16	745.3	340
Jacksonville	4,914.1	149	3,228.6	65
Total	14,039.3	130	7,744.3	45

Source: Department of the Army, Corps of Engineers, Waterborne Commerce of the United States.

North Carolina, Charleston, South Carolina, and Jacksonville, Florida, experienced greater growth in both tonnage handled and percentage increase between 1929 and 1963. If the 10 years between 1953 and 1963 are taken, Savannah also falls behind Brunswick. The total freight handled by these five ports in the 1953-1963 decade increased by 45%, while Savannah's tonnage grew by only 9%. Of the total increase of 7,744,000 tons during this period, Savannah's share was 328,200 tons -- only 4% of the total.

Employment Patterns

A comparison of Savannah's economy with that of two nearby ports (which are also metropolitan areas), Georgia, and the United States is given in Table 5. This distribution of nonagricultural employment shows that while Savannah's proportion of manufacturing is lower than that of the state or the nation it is considerably higher than that of Jacksonville or Charleston. Jacksonville's most important category is trade, with strong emphasis on wholesale and distribution employment -- 9.6% of total nonagricultural employment in

Table 5

DISTRIBUTION OF NONAGRICULTURAL EMPLOYMENT, SAVANNAH, CHARLESTON, JACKSONVILLE, THE STATE OF GEORGIA, AND THE UNITED STATES, 1964

	Savannah	Charleston	Jacksonville	Georgia	U. S.
Total nonagricultural employment	100.0	100.0	100.0	100.0	100.0
Contract construction	5.1	7.2	6.9	5.5	5.3
Manufacturing	26.7	17.3	13.8	31.9	29.7
Transportation, communication, utilities	11.2	6.3	10.5	6.7	6.8
Trade	22.2	20.5	28.1	21.0	20.9
Finance, insurance, real estate	5.1	4.2	9.4	4.9	5.1
Services and miscellaneous	13.4	11.4	14.7	12.1	15.8
Government	16.2	33.0	16.8	17.8	16.3

Source: U. S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings Statistics for States and Areas, 1939-64.

comparison with Savannah's 5.5%. Charleston's economy is heavily weighted toward government employment because of the presence of the large Navy Yard.

While Savannah would appear to have a well-balanced employment pattern -- a strong basis for overall expansion -- development in recent years has fluctuated. Table 6 records the annual average employment by major category at five-year intervals, with additional information on the highest employment in the past 16 years. Total nonagricultural employment between 1959 and 1964 dropped to a low of 51,600 in 1961, but had almost climbed back to the 1959 high by 1964. Manufacturing in 1964 was 1,100 below the 1959 high, while the transportation, communications, and utilities category was down near the 16-year low of 6,000 (1962).

Table 6

METROPOLITAN SAVANNAH NONAGRICULTURAL EMPLOYMENT
(in thousands)

	1949	1954	1959	1964	Employment in Peak Year
Total nonagricultural	40.7	50.3	54.5	54.4	54.5 (1959)
Contract construction	1.9	3.0	3.9	2.8	4.4 (1953)
Manufacturing	12.2	14.3	15.4	14.5	15.6 (1957)
Transportation, communication, utilities	6.6	6.6	6.4	6.1	7.3 (1951)
Trade	9.5	12.4	12.5	12.1	12.7 (1955)
Finance, insurance, real estate	1.4	1.6	2.5	2.8	2.9 (1963)
Services	4.8	6.0	6.2	7.3	7.3 (1964)
Government	4.3	6.4	7.6	8.8	8.8 (1964)

Source: U. S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings Statistics for States and Areas, 1939-64.

A closer look at the details of manufacturing employment (Table 7) also reveals a fluctuating pattern. Not one of the major categories has had consistent growth. Only "food" and "other nondurables" mention 1964 as a peak year, and even in these two cases the employment equalizes earlier peaks, rather than creating new ones.

Table 7

METROPOLITAN SAVANNAH MANUFACTURING EMPLOYMENT
(in thousands)

	1949	1954	1959	1964	Employment in Peak Year(s)
All manufacturing	12.2	14.3	15.4	14.5	15.6 (1957)
Total durable goods	3.2	3.9	4.3	3.7	4.8 (1957)
Lumber and wood	1.8	1.9	1.7	1.4	2.0 (1955, '56)
Transportation equipment	.6	1.1	1.7	1.4	2.4 (1957)
Other durables	.8	.9	.9	.9	1.1 (1952)
Total nondurable goods	9.0	10.4	11.1	10.8	11.1 (1959, '60)
Food	2.2	2.5	2.8	2.8	2.8 (1959, '60, '64)
Paper	4.9	5.9	5.8	5.4	5.9 (1953, '54, '55, '56)
Chemicals	.9	.8	1.4	1.4	1.5 (1962, '63)
Petroleum	.5	.6	.6	.6	.7 (1958)
Other nondurables	.5	.6	.5	.6	.6 (1952, '54, '55, '64)

Source: U. S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings Statistics for States and Areas, 1939-64.

Table 8 examines Savannah's economy in relation to the state and the nation. Each major category of employment has been calculated as a percentage of the larger area for the years 1949 and 1964. With the one exception of government, the 16-year span shows Savannah's employment decreasing as a percentage of that of Georgia.

Since the industrial development of Atlanta (which had 37.7% of Georgia's nonagricultural employment in 1964) exerts such an influence on the total figures for Georgia, the second two columns show Savannah as a percent of the remainder of Georgia outside the Atlanta Metropolitan Area. Although Savannah's proportion of services and government employment in the part of the state outside Atlanta increased, in all other categories Savannah did not keep pace.

The final two columns give data for the same two years with U. S. industry as a base. Here the pattern is changed, with Savannah gaining slightly as a percent of the U. S. in total employment. In the individual categories, finance, services, and government show strong gains, and construction a somewhat more modest increase. The two most important groups, however, manufacturing and trade, still show a decline, as does the transportation category (which includes shipping and dock work).

Table 8

EMPLOYMENT IN METROPOLITAN SAVANNAH AS PERCENT OF GEORGIA AND THE U. S., 1949 AND 1964

	Savannah as a Percent of					
	Georgia		Georgia Excluding Atlanta		United States	
	1949	1964	1949	1964	1949	1964
Total nonagricultural	5.3	4.6	7.8	7.4	.0930	.0935
Contract construction	5.5	4.3	9.0	7.7	.0878	.0901
Manufacturing	4.6	3.8	5.9	5.2	.0845	.0838
Transportation, communication, utilities	9.8	7.7	17.1	16.1	.1650	.1534
Trade	5.6	4.9	9.8	9.3	.1025	.0993
Finance, insurance, real estate	5.3	4.8	12.6	10.9	.0754	.0951
Services	5.6	5.3	8.9	9.8	.0661	.0856
Government	3.7	4.2	4.9	5.9	.0734	.0926

Source: Derived from U. S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings Statistics for States and Areas, 1939-64.

Table 9 takes this examination further into the details of Savannah's manufacturing employment. Only two categories show a comparative gain with the state as a base -- chemicals and lumber and wood. In the case of lumber and wood, Savannah experienced an actual decline in employment over the period, but this decrease was at a slower rate than that for the state as a whole. With Atlanta excluded from the base the same two industries again are the only ones to show a comparative gain.

Although Savannah has not kept up with the growth of the rest of the state, comparison with national figures shows a relative gain in some manufacturing groups. Durable goods dropped, but nondurables gained, leading to an overall slight loss in total manufacturing as compared with the nation. In the individual categories, comparative gains were made in transportation equipment, food, chemicals, petroleum, and other nondurables.

It is against this background that the future growth of Savannah must be examined.

Table 9

MANUFACTURING EMPLOYMENT IN METROPOLITAN SAVANNAH
AS PERCENT OF GEORGIA AND THE U. S., 1949 AND 1964

	Savannah as a Percent of					
	Georgia		Georgia Excluding Atlanta		United States	
	1949	1964	1949	1964	1949	1964
All manufacturing	4.6	3.8	5.9	5.2	.0845	.0838
Total durable goods	4.2	3.0	5.9	5.4	.0427	.0376
Lumber and wood	4.4	5.3	4.7	5.8	.2429	.2347
Transportation equipment	8.8	4.0	60.0	21.9	.0496	.0863
Other durables	2.7	1.5	5.1	2.4	.0144	.0118
Total nondurable goods	4.8	4.2	5.9	5.2	.1294	.1449
Food	7.0	6.1	10.4	8.5	.1237	.1618
Paper	49.5	25.5	65.3	35.3	1.0769	.8566
Chemicals	11.1	12.5	16.1	18.2	.1456	.1596
Petroleum	(a)	(a)	(a)	(a)	.2262	.3214
Other nondurables	.7	.7	.8	.8	.0129	.0149

(a) Not available. Combined with other nondurables.

Source: Derived from U. S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings for the United States, 1909-64 and Employment and Earnings Statistics for States and Areas, 1939-64.

ECONOMIC TRENDS

Many basic assumptions must be accepted before even the most general of economic forecasts can be made, and any estimates of future trends in this report assume that there will be no national upheaval due to any major military action, no severe inflation or depression, and that national policies will be such as to keep the economy on a reasonably even keel.

National Trends

Given these assumptions, the general productivity of the nation should continue to increase. Advances in technology, improvements in education and skills, and better utilization of resources will add to the average output per worker. Although the demand for consumer goods, equipment for business expansion, and government requirements will increase, the additional output per worker will cause a gradual decline in manufacturing as a percent of total employment. The number of farm workers will also continue to shrink, not only in relation to total employment but also in absolute numbers. Trade, and all types of services will expand, and construction and utilities are also likely to show some gains.

Workers in communications, finance, and real estate should maintain roughly their present share of total employment. The proportion of government employees will continue to increase, with possibly some leveling off during the 1980's.

Outlook for the South

Different regions of the U. S. are at different stages in their economic development, and although the general tendencies will be in the same direction as the nation, the relative changes in employment will vary. The industrialization of the South is a comparatively recent development, and its growth is likely to continue at a faster rate than that of the nation. In the next 20 years, therefore, the South's share of national employment in manufacturing should increase. Since manufacturing is such an important generator of other economic growth, the general outlook for the South is bright.

The distribution of new industrial growth within the South will, of course, be uneven and dependent on local conditions. Savannah has many advantages with which to attract its share of this expansion, but there are also local problems which must be tackled vigorously if they are not to prove a continuing drag on the area's economy.

Assets and Liabilities of the Savannah Area

One of Savannah's most important advantages is its location on the Atlantic Seaboard. The harbor and port facilities are an attraction for many industries that cannot be matched by any inland city. This, combined with good rail, motor freight, and air services, gives Savannah great pulling power for any operation where transportation is of major importance.

The completion of Interstate Highways 16 and 95, which will intersect in Chatham County west of the city, will add greatly to the ease of access to markets -- south to Florida, west to Macon, Atlanta and beyond, and north along the Eastern Seaboard.

Land suitable for industrial development is available at several locations throughout the county. Limited deepwater sites are available, and additional sites of this type could be created by certain channel improvements.

Water is available from wells in areas not supplied by the city water mains, and large quantities of soft water are also available to those plants located on the rivers.

With these advantages it would appear that Savannah should have no difficulty in obtaining new industry, but, as the records show, recent growth has been very modest. Some of Savannah's problems are apparently inhibiting the city's industrial development -- as compared with development in the rest of the state.

Millions of dollars have already been spent by the city on its water pollution problems, and millions more are scheduled to be spent. That the situation is serious can be seen from the following quotation from the Savannah Morning News (February 3, 1965) on a conference on pollution:

> . . . the states and federal government were in agreement on the following points:
>
> That the lower 28 miles of the Savannah River and its estuaries within the boundaries of the two states are polluted to a degree that endangers the health and welfare of residents of both states.
>
> That there is substantial agreement that municipal and industrial sources are discharging waste and contributing to the pollution of the

river. The sources, most of which are in the greater Savannah area, include the city of Savannah, the town of Savannah Beach, the Union Bag-Camp Paper Corp., the Continental Can Co., and other industries and municipalities, all of which pollute to a lesser degree than those identified.1/

That pollution abatement methods employed by the municipalities and industries up till now have not been adequate.

The present plans to correct this situation should be given priority, and consideration should be given to more stringent regulations on water pollution by present and future industries.

A closely related problem is the lack of water and sewerage services to many of the available industrial sites. In areas where septic tanks have proved satisfactory and well water is obtainable this would not be a serious problem to a major industry, but many small plants are likely to find the cost of well-digging, pump installation, and septic tank construction prohibitive. The development of industrial areas under public control where all utilities were readily available would be a definite attraction, enabling interested manufacturers to make closer estimates of the cost of setting up their operations.

Local officials are already aware of the need to improve the harbor and river conditions to encourage the location of industries requiring ocean shipping or barge facilities. The U. S. Army Corps of Engineers has been authorized by Congress to undertake channel dredging and widening, to construct a sediment trap on the South Carolina side of Hutchinson Island, and to study whether the 30-foot channel can be profitably extended upstream, but budgets for the work have still to be approved. (They will be presented for approval at the next session of Congress.)

Many of Savannah's troubles stem from inadequate revenue. Poor financial management in the past has left the city with a heavy debt service (nearly $2 million out of a proposed budget of $11.5 million in 1966) and a backlog of needed capital improvements. Recent modifications have put the city's finances on a better basis, but the need for major new expenditures and the existing burden of debt create a poor financial picture. The situation is complicated

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1/ Elsewhere in the same edition of the paper, Mr. H. H. Black, industrial wastes consultant for U. S. Department of Health, Education and Welfare and the Public Health Service was quoted as saying, "Union Bag is responsible for about 70% of the total problem."

by the practice of limiting the taxation of industries located in six special zones outside the city limits to a five-mill tax on real estate and improvements, when services such as water, sewerage, and fire and police protection are provided. These zones were created to prevent Savannah or any other neighboring municipality from annexing the land and thereby imposing additional taxes on the industries. Although the amounts collected may be sufficient to cover the direct expenses of any services provided, it is only a fraction of the tax revenue that would be paid under a full city property tax levy. In addition, companies outside the zones are at a tax disadvantage, and potential industries may well look askance at the situation. Even a manufacturer offered a site within a special zone might have doubts as to the advisability of locating in a city operating under such a financial handicap, which must drastically curtail the municipal services that the average city-dweller has come to expect.

At first glance it would also appear that high wage rates for production workers would be a detriment to prospective employers, but available data show that the average manufacturing earnings are heavily weighted by the number of employees in the paper industry (37% of total manufacturing). Table 10 shows

Table 10

AVERAGE WEEKLY EARNINGS OF PRODUCTION WORKERS, 1964

	Savannah	Charleston	Jacksonville	Atlanta	Georgia
Total manufacturing	$ 99.87	$81.00	$ 89.82	$ 97.44	$ 77.95
Durable goods	81.97	83.01		109.71	86.48
Lumber and wood	59.06		61.59	59.68	54.43
Transportation equipment	93.60			131.99	123.02
Nondurable goods	107.17	80.00		83.98	74.07
Food				91.72	75.58
Paper	116.47		121.36	97.20	112.56
Chemicals	93.98	73.04 1/	87.49	82.22	89.44
Major industry and percent of total manufacturing	Paper 37%	Apparel 10% Lumber and Wood 10%	Food 20%	Transportation Equipment 28%	Textiles 26%

1/ Agricultural chemicals.

Source: U. S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings Statistics for States and Areas, 1939-64.

earnings by some major industries, and the payment rates for durable goods in Savannah compare favorably with those of the other areas shown, including Atlanta and the state as a whole.

On review, then, it would appear that Savannah has many natural and man-made advantages. Its major problems can be solved or modified by vigorous effort on the part of city and county officials, backed by an informed and interested community.

THE FUTURE ECONOMY OF SAVANNAH

Many factors must be taken into consideration in forecasting the future economic development of Savannah -- the trends in the nation as a whole; the part the southern region is likely to play in the national picture; the pattern of past development in Savannah and its relation to Georgia, to the South, and to the U. S.; and also the special local circumstances which can be expected to influence the level of economic activity. Many of these factors have already been discussed.

The projections which follow are the result of carefully interrelated calculations, modified in the final analysis by personal judgment as to the effect of current development plans in Savannah.

It is obvious that such projections would be meaningless in the event of a major war or some new decision on the location of a government-controlled project in or near Savannah. Only known circumstances of this type -- such as the Hunter Air Force Base closing -- can be considered in their relationship to Savannah's future.

Population and Employment Outlook

Tables 11 and 12 summarize the estimates of population and total nonagricultural employment through 1985.

The growth of the population of Chatham County between the 1950 and 1960 Censuses included an increase of over 2,500 men in the armed forces. If military personnel are excluded and allowance is made for the natural increase (total births less total deaths), the net migration of civilians into the county over the 10-year period proves to be less than 1,000 persons.

Most of the gain during the 1950-1960 decade came within the first five years, and the slower growth in the second five years has continued since 1960. The net migration of population between 1960 and 1965 has been away from Chatham County.

Since Hunter Air Force Base will be closed during the current five-year period (1965-1970), the population figures in Table 11 (which includes military personnel), show an even more modest gain than that of 1960-1965, with out-migration of military personnel as well as some civilians. The employment figures in Table 12 (which are limited to civilian workers), are affected only to a limited degree by the loss of the Base, since only about 600 civilian employees work at Hunter. The indirect effect, however, will be felt throughout Savannah, particularly in retail and service establishments patronized by the military, and this is likely to cause some job losses in these establishments. Further losses -- or lack of expansion in numbers of available jobs -- will be felt in other industrial categories as the multiplier effect comes into operation and the reduction of money circulating through the stores reduces the spending power of the owners and operators.

Since Hunter is to be phased out over a period of two and one-half years, however, any effect will be gradual, and should be modified and eventually reversed by the development possibilities opened up by the freeing of the Air Base land. It has been assumed in this report that plans for the use of the Base will be actively pursued, and that by 1970 some results will already be apparent.

Other work already planned in channel dredging and widening and in the construction of new shipping berths and warehouses will greatly add to the attraction of the port.

Action on the water pollution problem should also show results by 1970, and further extensions of sewer and water lines can be anticipated. In addition, both Interstate Highway 16 (to Atlanta) and 95 (to the south) should be completed in the early 1970's.

This brighter outlook is reflected in the more rapid expansion rates for population and employment projected to 1985.

In Tables 13 and 14 the employment figures given in Table 12 are divided into major industrial categories -- Table 13 giving the estimated number of employees and Table 14 the percentage distribution. Although employment in all industry groups shows continued gains in the next 20 years, the growth rate varies, and, as can be seen in Table 14, changes are anticipated in the share of total employment accounted for by each sector.

As indicated in the preceding chapter, although the general tendencies of regional economic development will be in the same direction as the nation, local conditions may cause considerable variation in these trends. In Savannah it is anticipated that manufacturing employment will continue to hold and even

Table 11

POPULATION PROJECTIONS FOR THE SAVANNAH METROPOLITAN AREA THROUGH 1985

Year	Population	Increase Over Previous Figure Number	Increase Over Previous Figure Percent
1950	151,481		
1960	188,299	36,818 1/	24.3 1/
1965	199,500	11,201	5.9
1970	208,400	8,900	4.5
1975	231,900	23,500	11.3
1980	258,900	27,000	11.6
1985	290,000	31,100	12.0

1/ Ten-year period, as compared with five-year periods thereafter.

Source: 1950 and 1960 U. S. Censuses of Population. All other years estimated.

Table 12

PROJECTIONS OF NONAGRICULTURAL EMPLOYMENT
FOR THE SAVANNAH METROPOLITAN AREA THROUGH 1985

Year	Nonagricultural Employment 1/	Increase Over Previous Figure Number	Increase Over Previous Figure Percent
1950	42,300		
1955	52,000	9,700	22.9
1960	54,000	2,000	3.8
1965	56,000	2,000	3.7
1970	61,900	5,900	10.5
1975	69,100	7,200	11.6
1980	77,400	8,300	12.0
1985	87,000	9,600	12.4

1/ Excludes proprietors, self-employed, unpaid family workers, domestic workers in households, and Federal military personnel.

Source: 1950, 1955, and 1960 data from Employment and Earnings Statistics for States and Areas, 1939-64. 1965 advance data supplied by Bureau of Labor Statistics. All other years estimated.

Table 13

PROJECTIONS OF NONAGRICULTURAL EMPLOYMENT BY MAJOR INDUSTRIAL CATEGORIES FOR THE SAVANNAH METROPOLITAN AREA THROUGH 1985
(in thousands)

	1950	1955	1960	1965	1970	1975	1980	1985
Total	42.3	52.0	54.0	56.0	61.9	69.1	77.4	87.0
Contract construction	2.1	3.3	3.1	3.2	3.4	3.6	4.1	4.6
Manufacturing	13.0	14.6	15.2	15.1	16.5	18.6	20.9	23.5
Transportation, communications, utilities	6.6	6.6	6.5	5.8	6.4	6.9	7.4	8.1
Wholesale trade	10.0	12.7	3.1	3.0	3.5	4.0	4.7	5.4
Retail trade			9.3	9.5	10.5	11.9	13.4	15.0
Finance, insurance, real estate	1.4	1.8	2.6	2.7	3.2	3.6	4.0	4.5
Services	4.7	6.2	6.4	7.5	8.8	10.2	11.8	13.7
Federal government	4.5	6.8	2.4	2.9	2.3	2.5	2.7	2.9
State and local government			5.4	6.3	7.3	7.8	8.4	9.3

Source: 1950, 1955, and 1960 data from Employment and Earnings Statistics for States and Areas, 1939-64. 1965 advance data supplied by Bureau of Labor Statistics. All other years estimated.

Table 14

DISTRIBUTION OF NONAGRICULTURAL EMPLOYMENT BY MAJOR INDUSTRIAL CATEGORIES FOR THE SAVANNAH METROPOLITAN AREA THROUGH 1985
(in percent)

	1950	1955	1960	1965	1970	1975	1980	1985
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Contract construction	5.0	6.3	5.7	5.6	5.5	5.2	5.2	5.2
Manufacturing	30.6	28.0	28.2	27.0	26.7	26.9	27.0	27.0
Transportation, communications, utilities	15.6	12.7	11.9	10.3	10.3	10.0	9.6	9.3
Wholesale trade	23.5	24.3	5.8	5.4	5.7	5.8	6.1	6.2
Retail trade			17.2	17.0	16.9	17.2	17.3	17.3
Finance, insurance, real estate	3.4	3.6	4.8	4.8	5.2	5.2	5.2	5.2
Services	11.1	11.9	11.9	13.4	14.2	14.8	15.3	15.8
Federal government	10.8	13.2	4.5	5.2	3.7	3.6	3.5	3.3
State and local government			10.0	11.3	11.8	11.3	10.8	10.7

Source: Derived from Table 13.

increase its present share of total employment (Table 14), whereas the national pattern shows manufacturing growing at a lesser rate than other sectors of the economy, thus decreasing as a percentage of total employment.

Manufacturing Employment Forecasts

Table 15 breaks down the projected manufacturing employment by major classifications, and Table 16 shows the same figures as a percentage of total manufacturing. Although all major categories are expected to show some expansion, some types of industry are considered to have much greater potential than others. Whereas much of the expansion of the food industry will be directly related to the growing local population, other manufacturing will have regional and national markets. Major gains are shown in chemicals, where growth is expected in industrial rather than agricultural chemical operations. The present employment of some 800 workers in producing agricultural chemicals is not likely to show much expansion. The increase shown under "other durables" includes the manufacture of industrial machinery and equipment, household appliances, and various types of fabricated metal goods.

Table 15

PROJECTIONS OF MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES
FOR THE SAVANNAH METROPOLITAN AREA THROUGH 1985
(in thousands)

	1950	1955	1960	1965	1970	1975	1980	1985
Total Manufacturing	13.0	14.6	15.2	15.1	16.5	18.6	20.9	23.5
Durable Goods	3.5	4.3	4.1	4.0	5.0	6.3	7.2	7.9
Lumber and wood	1.8	2.0	1.5	1.3	1.5	1.6	1.7	1.8
Transportation equipment	.8	1.4	1.8	1.7	1.9	2.2	2.4	2.6
Other durables	.9	.9	.8	1.0	1.6	2.5	3.1	3.5
Nondurable Goods	9.5	10.3	11.1	11.1	11.5	12.3	13.7	15.6
Food	2.2	2.4	2.8	2.9	2.9	3.1	3.4	3.8
Paper	5.4	5.9	5.8	5.4	5.7	6.0	6.3	6.5
Chemicals	.9	.9	1.4	1.5	1.6	1.9	2.5	3.7
Petroleum products	.5	.5	.6	.6	.6	.6	.7	.7
Other nondurables	.5	.6	.5	.7	.7	.7	.8	.9

Source: 1950, 1955, and 1960 data from Employment and Earnings Statistics for States and Areas, 1939-64. 1965 advance data supplied by Bureau of Labor Statistics. All other years estimated.

Table 16

DISTRIBUTION OF MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES FOR THE SAVANNAH METROPOLITAN AREA THROUGH 1985
(in percent)

	1950	1955	1960	1965	1970	1975	1980	1985
Total Manufacturing	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Durable Goods	26.9	29.5	27.0	26.5	30.3	33.9	34.5	33.6
Lumber and wood	13.8	13.7	9.9	8.6	9.1	8.6	8.1	7.6
Transportation equipment	6.2	9.6	11.5	11.3	11.5	11.8	11.5	11.1
Other durables	6.9	6.2	5.6	6.6	9.7	13.5	14.9	14.9
Nondurable Goods	73.1	70.5	73.0	73.5	69.7	66.1	65.5	66.4
Food	16.9	16.4	18.4	19.2	17.6	16.7	16.3	16.2
Paper	41.5	40.4	38.2	35.8	34.6	32.2	30.1	27.7
Chemicals	6.9	6.2	9.2	9.9	9.7	10.2	12.0	15.7
Petroleum products	3.9	3.4	4.6	4.0	3.6	3.2	3.3	3.0
Other nondurables	3.9	4.1	3.3	4.6	4.2	3.8	3.8	3.8

Source: Derived from Table 15.

The outlook for transportation equipment is also good, with expansion of ship building and repair work, the possibility of subcontracts from Lockheed under their C5A program, and the further possibility of the port attracting some foreign car imports on the basis of final assembly work in Savannah.

Some expansion of the present paper mill operations is projected, but no new facilities are expected to locate in the area.

Although lumber and wood employment on a national level is expected to decrease, some gains are visualized for Savannah. The recent announcement by Georgia Pacific Corporation of plans to build a new plywood plant -- Georgia's first southern pine plywood installation -- adjacent to its present operation confirms this view. This new facility will increase the present employment in the millwork, veneer, plywood, and prefabricated structural wood products classification from 800 to about 1,000, and this category should reach 1,100 workers (out of an estimated total of 2,000 in lumber and wood) by 1985.

It should be emphasized that these projections are predicated on the assumption that the work needed to make the most of Savannah's natural advantages and to modify its disadvantages will be carried through with a minimum of delay. This will mean persistence by the leaders of the city in promoting and coordinating local effort and in following through on long-range capital improvements.

Income and Expenditure Projections

The increase in employment in Savannah will, of course, mean an increase in the total income received and an overall expansion in the flow of money through the economy. In addition to the gain due to the greater number of workers, however, individual incomes will also rise.

As indicated in the previous chapter, productivity throughout the nation is expected to grow. Technological improvements will lead to increased efficiency in the utilization of resources, and the additional output per employee will be reflected in increased personal income.

In 1960 per capita income in Chatham County was roughly 82% that of the nation, with long-term trends indicating that Savannah was gradually getting closer to the national average. By 1985 it is anticipated that per capita income in the county will have reached $3,485 (in 1959 constant dollars) -- approximately 90% of the U. S. figure at that date. This growth is shown by five-year stages in Table 17.

Table 17

PER CAPITA INCOME 1/ IN THE SAVANNAH METROPOLITAN AREA THROUGH 1985
(in 1959 constant dollars)

1960	$1,813
1965	2,199
1970	2,555
1975	2,867
1980	3,181
1985	3,485

1/ Total personal income, before payment of taxes.

The change in family expenditures (including one-person families) is given in Table 18. As incomes rise, a gradually decreasing proportion of the total will be allocated to food, liquor, and tobacco. The amount paid for housing and utilities will also show a proportionate decrease, but a higher percentage of income will be spent on furniture, furnishings, appliances, and general household equipment.

The amount spent on clothing and accessories will increase slightly as a percent of total expenditure. Rising incomes will also cause greater proportionate spending on transportation, as non-car owners find they can afford to buy a car, and one-car families become two- or three-car families. But this expenditure will level off (as a percentage of the total) and probably decrease as incomes continue to rise and car purchases can be met by a lesser proportion of total income.

Recreation will become a more important factor as working hours tend to shrink, giving workers more time for sport, travel, and hobbies of all kinds. The proportion of income spent on various forms of recreation will continue to increase in the foreseeable future -- and will represent a growing market for manufacturing, trade, and service industries.

These comments have applied to proportionate changes in spending patterns. As indicated in Table 18, however, actual expenditures in all categories will increase, though at varying rates. The economic areas within Savannah will also show considerable variation in expenditure patterns as the average income reaches different levels at different periods. Details of these area changes are given in Part II.

Table 18

INCOME CONSUMPTION PATTERNS IN THE SAVANNAH METROPOLITAN AREA THROUGH 1985
(in 1959 constant dollars)

	1960	1965	1970	1975	1980	1985
Average expenditure for current consumption per family and unrelated individual	$4,510	$5,525	$6,223	$6,683	$7,202	$8,017
Food, liquor, tobacco	1,246	1,447	1,597	1,712	1,837	1,951
Housing, including utilities	776	906	1,021	1,089	1,159	1,238
Household operations, furniture and equipment	509	663	734	801	904	1,057
Clothing and accessories	482	597	672	728	806	942
Personal care	149	189	199	214	231	254
Medical care	288	359	404	427	446	496
Recreation	163	199	261	294	332	403
Transportation, including vehicles	743	983	1,083	1,142	1,195	1,305
Other	154	182	252	276	292	371

Part II

LAND USE PROJECTIONS FOR THE SAVANNAH AREA

LAND USE PROJECTIONS

On the following pages are presented projections of the additional space that will be needed to serve the growing Savannah-Chatham County population during the years from 1965 to 1985. These projections are given for each of the nine economic areas in five-year increments and are broken down by type of land use -- residential, industrial, retail, office, and miscellaneous (personal services, motel and hotel, hospital, other institutional, and commercial recreation). Table 19 summarizes the land use projections which are presented in greater detail in the remainder of the chapter.

Table 19

SUMMARY OF LAND USE REQUIREMENTS, 1965-1985

Land Use	1965-70	1970-75	1975-80	1980-85	Total 1965-85
Residential, Total (acres)	667	1,788	2,057	2,353	6,865
Single-Family (units)	2,640	7,122	8,196	9,380	27,338
(acres)	662	1,782	2,050	2,345	6,839
Duplex (units)	40	46	56	64	206
(acres)	4.0	4.6	5.6	6.4	20.6
Apartment (units)	20	32	48	56	156
(acres)	0.7	1.1	1.7	1.9	5.4
Industrial (acres)	345	526	629	768	2,268
Retail, Total (acres)	44	118	136	156	454
Comparison (sq. ft.)	178,000	470,000	540,000	622,000	1,810,000
Convenience (sq. ft.)	158,598	423,000	486,000	559,800	1,627,398
Miscellaneous (sq. ft.)	462,800	1,220,000	1,404,000	1,617,200	4,703,200
Office Space (sq. ft.)	216,650	270,250	297,450	367,100	1,151,450
Transportation, Communications, Utilities, n.e.c.1/ (acres)	28	23	23	33	107
Government, n.e.c.1/ (acres)	14	12	14	19	59
Other Land Use					
Personal Services (sq. ft.)	29,370	77,550	89,100	102,630	298,650
Motel-Hotel (units)	100	270	320	210	900
(acres)	5.0	11.6	14.1	10.5	41.2
Hospital (beds)	70	180	200	230	680
(acres)	4.2	11.0	12.7	14.6	42.5
Institutional (acres)	89	235	270	310	904
Commercial Recreation (acres)	36	94	108	124	362

1/ n.e.c. = not elsewhere classified. Space requirements of non-office employees.

Residential Land Use

This section analyzes Chatham County's housing and population trends and relates these trends to the demands for additional housing that can be expected in future years. This housing demand (single-family, duplex, and multi-family) has been projected by number of units and by the amount of acreage that will be required by 1985 and distributed within the nine economic areas in five-year increments.

Table 20 illustrates the growth of Chatham County's cities from 1940 to 1960 and indicates the ever increasing urbanization pattern in the county. As shown in Table 20, the urbanized population increased from 84.6% in 1950 to 90.2% in 1964.

Although the city of Savannah has increased its population since 1940, its share of the total population of Chatham County has dropped from 81.4% in 1940

Table 20

POPULATION GROWTH IN CHATHAM COUNTY, 1940-1960

	1940		1950		1960	
Communities	Population	% of County Total	Population	% of County Total	Population	% of County Total
Garden City	734	0.6	1,557	1.0	5,451	2.8
Pooler	736	0.6	818	0.5	1,073	0.6
Port Wentworth	-	-	-	-	3,705	1.9
Savannah	95,996	81.4	119,638	79.0	149,245	79.1
Savannah Beach	644	0.5	1,036	0.7	1,385	0.7
Thunderbolt	886	0.8	1,238	0.8	1,925	1.0
Chatham County Total	117,970	100.0	151,481	100.0	188,299	100.0
Incorporated Population	98,996	83.9	124,287	82.0	162,084	86.1
Unincorporated Population	18,974	16.1	27,194	18.0	26,215	13.9
Urbanized Population1/	-	-	128,196	84.6	169,887	90.2

1/ Does not include Pooler and Savannah Beach, which are not considered part of the Savannah urbanized area because they are small communities in the rural part of the county. An urbanized area, according to the Census definition, consists of at least one city of 50,000 inhabitants or more and contiguous closely settled incorporated places and unincorporated areas.

Source: U. S. Census of Population.

to 79.1% in 1960. The more rapid rate of growth of the urbanized fringe areas around the central city and of the incorporated municipalities in the metropolitan area has caused a decline in the percent of total county population for the major city. This is a trend that is being experienced by many metropolitan areas.

Past Housing Trends

The housing growth for Savannah, Chatham County, and the state is shown in Table 21. The purpose of this table is to provide a basis for determining the housing needs of a permanent population.

The three trends of most importance illustrated here are: (1) percent of population in dwelling units, (2) the occupancy rate, and (3) the average population per occupied dwelling unit.

Of the three trends mentioned above, the occupancy rate of 90% for the county in 1960 would not reflect a normal trend over long-range projections. This trend was caused by a population fluctuation which, to a great extent, would probably coincide with the troop movements of Hunter Air Force Base. Even though the occupancy ratio for the area is not equivalent to the norm used, for the purpose of this study an occupancy ratio of 95% appears to offer a better index of a healthy housing market for long-term projections. It is believed that the percentage will stabilize to this norm by 1985.

Of Chatham County's total inhabitants in 1960, 98.6% were living in dwelling units. This figure will be used for projecting future housing demand.

Residential construction trends (note Table 22) in Chatham County since 1960 indicate only minor duplex and apartment development. This trend could possibly be based on one of three reasons:

(1) the population of this area does not favor multi-family units,

(2) these types of dwelling units are not made available by developers, or

(3) a number of older homes, particularly in the area in and around the core of Savannah, have been converted to multi-family use.

It will be assumed that the last is the case. For this reason very little additional acreage has been assigned for future multi-family development. It is believed by the writers that redevelopment, either public or private, will renew these areas and that modern multi-family dwelling units will

Table 21

PAST HOUSING TRENDS

1960	Total Population	Population in Dwelling Units	Percent of Population Living in Dwelling Units	Total Dwelling Units	Occupied Dwelling Units	Occupancy Rate (%)	Average Population per Occupied Dwelling Unit
Georgia	3,943,116	3,868,325	98.1	1,170,039	1,070,325	91	3.6
Chatham County	188,299	185,676	98.6	59,325	53,165	90	3.5
Savannah	149,245	146,964	98.4	46,669	42,934	92	3.4
1950							
Georgia	3,444,578	3,335,172	96.8	966,672	889,269	92	3.7
Chatham County	151,481	146,506	96.7	46,928	43,074	92	3.4
Savannah	119,638	116,922	97.7	39,445	37,172	94	3.4
1940							
Georgia	3,123,723	*	*	796,715	752,241	94	4.2
Chatham County	117,970	*	*	33,281	31,718	95	3.7
Savannah	95,996	*	*	27,253	26,406	97	3.6

* Data not available.

Source: U. S. Census of Population.

Table 22

HOUSING CONSTRUCTION IN CHATHAM COUNTY, 1961-1964
(dwelling units)

Economic Area	1961			1962			1963			1964		
	Single	Du-plex	Apt.1/	Single	Du-plex	Apt.1/	Single	Du-plex	Apt.1/	Single	Du-plex	Apt.1/
A	-	-	-	-	-	-	-	-	-	-	-	-
B	64	-	-	45	-	-	41	-	4	62	1	-
C	50	2	-	17	-	-	17	1	-	32	-	-
D	68	-	8	37	-	-	101	-	8	29	1	8
E	-	-	-	-	-	-	-	-	-	-	-	-
F	80	-	-	51	-	-	32	-	-	53	-	-
G	83	1	-	141	1	-	209	-	-	249	-	-
H	350	-	-	330	3	-	414	3	-	386	1	-
J	181	-	-	105	-	-	252	-	-	215	-	-
Total	876	3	8	726	4	0	1,066	4	12	1,026	3	8

1/ Does not include public housing projects.

Source: Building permit records of Chatham County and individual cities.

be built on a certain amount of this land, a development which will not greatly change the existing land use. However, renewal may generate an additional need for multi-family dwelling units.

Projections on additional acreage requirements for residential growth have been based on past trends and probable future conditions. Based on these assumptions, it is felt that the majority of population growth will continue to fall in economic areas G, H, and J.

Estimated Additional Residential Demand

Table 23 provides an estimate of the future demand for additional dwelling units in Chatham County.

Table 23

ADDITIONAL RESIDENTIAL DEMAND

	1960	1965 1/	1965-1970 1/	1970-1975 1/	1975-1980 1/	1980-1985 1/
Population	188,299	199,500	208,400	231,900	258,900	290,000
Increase over previous period		11,201	8,900	23,500	27,000	31,100
Percent of population living in dwelling units			98.6	98.6	98.6	98.6
Additional population living in dwelling units			8,775	23,171	26,622	30,665
Average population per occupied dwelling unit			3.4	3.4	3.4	3.4
Number of additional occupied dwelling units required			2,580	6,815	7,830	9,019
Vacancy ratio and demolition factor 2/			6%	6%	6%	6%
Additional dwelling units required in each period (rounded)			2,700	7,200	8,300	9,500

1/ Estimated.

2/ Vacancy ratio of 5% and demolition factor of 1%.

Table 24

FUTURE DEMAND FOR ADDITIONAL HOUSING IN DWELLING UNITS, CHATHAM COUNTY

Units	1965-70	1970-75	1975-80	1980-85	Total 1965-85
Single-Family					
A	-	-	-	-	-
B	156	350	399	457	1,362
C	75	210	243	277	805
D	150	414	474	542	1,580
E	-	214	245	281	740
F	158	428	494	564	1,644
G	482	1,220	1,407	1,609	4,718
H	1,056	2,850	3,280	3,756	10,942
J	563	1,436	1,654	1,894	5,547
Total	2,640	7,122	8,196	9,380	27,338
Duplex					
A	-	-	-	-	-
B	2	2	4	6	14
C	6	6	6	8	26
D	4	6	8	8	26
E	-	2	4	4	10
F	4	4	4	6	18
G	4	4	4	6	18
H	16	18	20	20	74
J	4	4	6	6	20
Total	40	46	56	64	206
Apartment					
A	-	-	-	-	-
B	4	8	12	12	36
C	-	-	-	-	-
D	8	12	16	20	56
E	-	-	-	-	-
F	-	-	-	-	-
G	-	-	-	-	-
H	8	12	20	24	64
J	-	-	-	-	-
Total	20	32	48	56	156
Total Dwelling Units	2,700	7,200	8,300	9,500	27,700

Table 25

RESIDENTIAL LAND ABSORPTION IN ACRES, CHATHAM COUNTY

Units	1965-70	1970-75	1975-80	1980-85	Total 1965-85
Single-Family (@ 4 units/acre)					
A	-	-	-	-	-
B	39	88	100	114	341
C	19	53	61	69	202
D	38	104	119	136	397
E	-	54	61	70	185
F	40	107	123	141	411
G	121	305	352	402	1,180
H	264	712	820	939	2,735
J	141	359	414	474	1,388
Total	662	1,782	2,050	2,345	6,839
Duplex (@ 10 units/acre)					
A	-	-	-	-	-
B	.2	.2	.4	.6	1.4
C	.6	.6	.6	.8	2.6
D	.4	.6	.8	.8	2.6
E	-	.2	.4	.4	1.0
F	.4	.4	.4	.6	1.8
G	.4	.4	.4	.6	1.8
H	1.6	1.8	2.0	2.0	7.4
J	.4	.4	.6	.6	2.0
Total	4.0	4.6	5.6	6.4	20.6
Apartment (@ 30 units/acre)					
A	-	-	-	-	-
B	.1	.3	.4	.4	1.2
C	-	-	-	-	-
D	.3	.4	.6	.7	2.0
E	-	-	-	-	-
F	-	-	-	-	-
G	-	-	-	-	-
H	.3	.4	.7	.8	2.2
J	-	-	-	-	-
Total	.7	1.1	1.7	1.9	5.4
Total Acres (rounded)	667	1,788	2,057	2,353	6,865

As stated previously, it was assumed that the occupancy ratio would stabilize at 95%, yielding a 5% vacancy ratio. A 1% demolition factor was added to obtain the 6% vacancy ratio and demolition factor used in estimating the housing demand. A detailed study on the demolition in each economic area is beyond the scope of this study. However, demolition can be a deciding factor in estimating future dwelling unit demand since existing structures will need replacing as a result of loss through fire, old age, highway construction, urban renewal, and other factors.

Calculating on the basis of 98.6% of the population living in dwelling units, 3.4 persons per occupied dwelling unit, and a 6% vacancy ratio and demolition factor, the dwelling unit demand for Chatham County for the 20-year period between 1965 and 1985 can be estimated at 27,700 units.

Tables 24 and 25 show the projections for additional dwelling units and distribution by the number of units and acres needed in each economic area through 1985. Projections of population by economic areas are given in Appendix 1.

Industrial Land Use

Industrial land use projections, which have been translated into an area's future economy based on information of past and present trends, depend largely on the available information and the judgment undertaken in predicting future market trends.

This section deals with the prediction of additional industrial land needs in Chatham County over the 20-year period between 1965 and 1985. The projected acreage demand was distributed throughout the county within the economic areas by five-year increments. Industrial land use data are presented separately for the manufacturing and nonmanufacturing categories.

The manufacturing classification is broken down into two sub-classifications: durable goods and nondurable goods. Durable goods includes such categories as lumber and wood products, transportation equipment, fabricated metal products, and machinery. Nondurable goods includes such categories as food products, paper products, chemicals, petroleum, and apparel.

The nonmanufacturing classification includes such categories as warehousing, wholesale trade, and contract construction. In this study, the nonmanufacturing categories do not include all of the commercial land uses.

In estimating the future industrial land needs of Chatham County, the existing land use was determined for both manufacturing and nonmanufacturing categories and for the existing labor force.

Currently, Economic Area F is the major industrial area in Chatham County, and this trend is expected to continue. It has been allotted the largest percentage of the projected industrial demand. Economic Area G received the next largest percentage of the projected demand. Economic Area E (Hunter Air Force Base) has been allotted a small amount of industrial growth during the study period. As previously mentioned, this is based on the assumption that a development potential exists in this area which will be exploited to a certain degree within the next 20 years.

Existing Industrial Land

The existing and proposed industrial areas are found in every direction from the core of Savannah, with the preponderance to the east and west along the Savannah River front.

A large amount of industrial land is developed or prepared for development in the Savannah-Chatham County area. In the past, industries desiring a location for immediate occupancy have been limited in alternatives available to them. With the additional industrial lands, both private and public, now being suggested or being made available for development, a number of industrial sites will be available for immediate occupancy. However, if this area is to maintain its competitive rank, a continuing program of industrial site development will be needed, particularly along the river front for water-oriented users.

A recent survey conducted by the Metropolitan Planning Commission indicates that a total of approximately 3,357 acres of occupied industrial land is located in the county.[1/] Of this amount, approximately 2,443 acres are being used by manufacturing industries. (See Table 26.) During this same period,

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1/ This figure includes land being held in reserve by various industries, but does not include port facilities.

the manufacturing employment was estimated at 15,100. (See Tables 27 and 28.) This gives an employment ratio for manufacturing industries of 6.2 employees per acre.

Table 26

EXISTING AND PROJECTED INDUSTRIAL ACREAGES

	Acres
Existing, 1965	
Manufacturing	2,443
Nonmanufacturing (Ratio 1:0.4)	914
Total	3,357
Projected 1965-85	
Manufacturing	1,512
Nonmanufacturing (Ratio 1:0.5)	756
Total	2,268

Projected Industrial Land Use Requirements

Currently, 73% of the industrial land is being used by manufacturing industries and 27% by nonmanufacturing industries. However, for the 20-year period between 1965 and 1985, it is anticipated that the nonmanufacturing category will demand a higher ratio of the industrial land. The existing land ratio between the manufacturing and the nonmanufacturing categories is 1:0.4. The projected ratio for future industrial land demand is 1:0.5. This higher ratio is based on a continuing building program by the Georgia Ports Authority and an increase in the construction of warehousing facilities.

By applying existing standards to the projected future employment level and by applying the projected 1:0.5 land ratio, acreage estimates can be developed. (See Table 26.)

In calculating the estimated projected industrial acreage, the net acreage was first determined for each manufacturing classification by dividing the number of estimated additional employees by the estimated number of employees

Table 27

DISTRIBUTION OF NONAGRICULTURAL EMPLOYMENT
BY MAJOR INDUSTRIAL CATEGORIES, BY ECONOMIC AREAS, 1965

	A	B	C	D	E	F	G	H	J
Total	15,030	14,370	3,290	4,730	650	13,250	2,220	2,210	250
Contract construction	500	1,110	110	290	-	320	360	500	10
Manufacturing	620	1,520	1,440	300	-	10,200	930	70	20
Transportation, communications, utilities	2,300	2,950	90	80	-	290	90	-	-
Wholesale trade	700	1,650	170	40	-	340	100	-	-
Retail trade	3,730	2,540	530	1,350	-	570	170	480	130
Finance, insurance, real estate	1,720	470	180	250	-	10	-	70	-
Services	2,820	2,730	270	900	-	250	170	300	60
Federal government	1,270	60	40	110	650	500	50	220	-
State and local government	1,370	1,340	460	1,410	-	770	350	570	30

Table 28

DISTRIBUTION OF MANUFACTURING EMPLOYMENT
BY MAJOR CATEGORIES, BY ECONOMIC AREAS, 1965

	A	B	C	D	E	F	G	H	J
Total	620	1,520	1,440	300	-	10,200	930	70	20
Durable Goods	30	660	170	140	-	2,790	200	10	-
Lumber and wood	-	100	60	70	-	940	130	-	-
Transportation equipment	-	160	-	-	-	1,540	-	-	-
Other durables	30	400	110	70	-	310	70	10	-
Nondurable Goods	590	860	1,270	160	-	7,410	730	60	20
Food	30	630	490	160	-	1,020	490	60	20
Paper	20	-	40	-	-	5,340	-	-	-
Chemicals	200	110	500	-	-	450	240	-	-
Petroleum products	-	-	-	-	-	600	-	-	-
Other nondurables	340	120	240	-	-	-	-	-	-

per acre. (See Table 29.) Since land is needed for parking, roads, railroad spurs, easements, landscaping, reserve acreage for expansion, and other reasons, the net acreage was multiplied by 2.5 to produce the projected gross acreage. The 2.5 figure is more arbitrary than scientific and probably will be proven as a low indicator.

Table 29

SUGGESTED AVERAGE NUMBER OF EMPLOYEES PER ACRE, BY TYPE OF INDUSTRY

Manufacturing	Employees per Acre
Durable Goods	
Lumber and wood products, except furniture	10
Millwork, veneer, plywood and prefabricated structural wood products	10
Transportation equipment	15
Other durable goods	
Furniture and fixtures	20
Stone, clay and glass products	15
Fabricated metal products, electrical	14
Machinery, nonelectrical	20
Professional, scientific, controlling instruments	V1/
Miscellaneous manufacturing industries	30
Nondurable Goods	
Food and kindred products	15
Paper and allied products	22
Chemicals and allied products	
Agricultural chemicals	10
Petroleum refining and related industries	10
Other nondurable goods	
Apparel and finished products	80
Printing, publishing and other allied industries	22
Rubber products	20
Leather products	30
Nonmanufacturing	
Warehousing	V
Wholesale Trade	V
Contract Construction	V

1/ Variable.

Since employees per acre cannot be calculated for many of the nonmanufacturing classifications, such as warehousing, the 1:0.5 ratio was used to determine the gross acres for this classification.

As shown in Table 30, the projected demand for additional industrial land ranges from a requirement of 345 acres between 1965 and 1970 to 768 acres between 1980 and 1985. The projected demand for the 20-year period has been estimated at 2,268 acres.

Table 30

PERIODIC DISTRIBUTION OF INDUSTRIAL ACREAGE PROJECTIONS, 1965-1985

Economic Area	1965-1970	1970-1975	1975-1980	1980-1985	Total 1965-85
			Manufacturing		
A	-	-	-	-	-
B	45	58	55	55	213
C	27	55	82	140	304
D	10	15	15	10	50
E	-	10	12	7	29
F	110	148	187	215	660
G	35	55	60	77	227
H	3	7	5	5	20
J	-	3	3	3	9
Total	230	351	419	512	1,512
			Nonmanufacturing		
A	-	-	-	-	-
B	22	34	42	55	153
C	7	9	10	12	38
D	5	8	8	10	31
E	-	5	7	10	22
F	42	58	70	86	256
G	30	48	59	65	202
H	6	8	8	10	32
J	3	5	6	8	22
Total	115	175	210	256	756
Grand Total	345	526	629	768	2,268

Tables 31, 32, and 33 give the additional employment projected for the major categories of the manufacturing and nonmanufacturing classifications and periodic distribution of these estimates in the economic areas through 1985.

Table 31

PERIODIC DISTRIBUTION OF INDUSTRIAL EMPLOYMENT PROJECTIONS, 1965-1985

Manufacturing

Economic Area	1965-1970	1970-1975	1975-1980	1980-1985	Total 1965-85
A	-	-	-	-	-
B	273	392	329	304	1,298
C	159	276	379	604	1,418
D	54	83	84	58	279
E	-	65	36	27	128
F	684	930	1,075	1,129	3,818
G	200	300	346	422	1,268
H	30	46	39	36	151
J	-	8	12	20	40
Total	1,400	2,100	2,300	2,600	8,400

Nonmanufacturing

Economic Area	1965-1970	1970-1975	1975-1980	1980-1985	Total 1965-85
A	-	-	-	-	-
B	121	112	165	137	535
C	38	33	55	43	169
D	24	21	39	31	115
E	-	17	28	34	79
F	77	76	122	133	408
G	64	67	131	160	422
H	22	20	50	50	142
J	4	4	10	12	30
Total	350	350	600	600	1,900
Grand Total	1,750	2,450	2,900	3,200	10,300

Retail Development

This section presents an analysis of the Savannah-Chatham County retail space needs and the projection of these space needs to the year 1985 within the nine economic areas.

The projections of the requirements for additional retail space are meant as a guide for future planning studies and are not intended to indicate precise locations for an individual store or a group of stores. Also, this study should not be taken as indicating that the projected space requirements could not reach the various levels prior to the time periods as set forth. All projections in this study are based on an expected population increase.

Table 32-A

DISTRIBUTION OF ADDITIONAL MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1965-1970

	A	B	C	D	E	F	G	H	J
Durable Goods, Total	-	266	88	54	-	374	188	30	-
Lumber and wood products except millwork, etc.	-	20	10	10	-	38	30	-	-
Millwork, veneer, plywood and prefabricated wood products	-	16	6	8	-	36	26	-	-
Transportation equipment	-	50	-	-	-	126	24	-	-
Other durable goods	-	180	72	36	-	174	108	30	-
Nondurable Goods, Total	-	7	71	-	-	310	12	-	-
Food and kindred products	-	-	-	-	-	-	-	-	-
Paper and allied products	-	-	30	-	-	270	-	-	-
Chemicals and allied products	-	7	41	-	-	40	12	-	-
Petroleum	-	-	-	-	-	-	-	-	-
Other nondurable goods	-	-	-	-	-	-	-	-	-
Total Manufacturing	-	273	159	54	-	684	200	30	-

Table 32-B

DISTRIBUTION OF ADDITIONAL MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1970-1975

	A	B	C	D	E	F	G	H	J
Durable Goods, Total	-	336	98	63	65	476	226	36	-
Lumber and wood products except millwork, etc.	-	10	4	5	5	18	15	-	-
Millwork, veneer, plywood and prefabricated wood products	-	5	4	4	-	17	13	-	-
Transportation equipment	-	69	-	-	15	180	36	-	-
Other durable goods	-	252	90	54	45	261	162	36	-
Nondurable Goods, Total	-	56	178	20	-	454	74	10	8
Food and kindred products	-	38	28	20	-	58	38	10	8
Paper and allied products	-	-	30	-	-	270	-	-	-
Chemicals and allied products	-	18	120	-	-	126	36	-	-
Petroleum	-	-	-	-	-	-	-	-	-
Other nondurable goods	-	-	-	-	-	-	-	-	-
Total Manufacturing	-	392	276	83	65	930	300	46	8

Table 32-C

DISTRIBUTION OF ADDITIONAL MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1975-1980

	A	B	C	D	E	F	G	H	J
Durable Goods, Total	-	226	67	54	36	331	162	24	-
Lumber and wood products except millwork, etc.	-	8	4	4	3	17	15	-	-
Millwork, veneer, plywood and prefabricated wood products	-	4	3	4	3	20	15	-	-
Transportation equipment	-	46	-	10	-	120	24	-	-
Other durable goods	-	168	60	36	30	174	108	24	-
Nondurable Goods, Total	-	103	312	30	-	744	184	15	12
Food and kindred products	-	57	42	30	-	87	57	15	12
Paper and allied products	-	-	30	-	-	270	-	-	-
Chemicals and allied products	-	36	240	-	-	252	72	-	-
Petroleum	-	-	-	-	-	100	-	-	-
Other nondurable goods	-	10	-	-	-	35	55	-	-
Total Manufacturing	-	329	379	84	36	1,075	346	39	12

Table 32-D

DISTRIBUTION OF ADDITIONAL MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1980-1985

	A	B	C	D	E	F	G	H	J
Durable Goods, Total	-	146	40	38	27	290	143	16	-
Lumber and wood products except millwork, etc.	-	5	5	3	3	18	20	-	-
Millwork, veneer, plywood and prefabricated wood products	-	5	3	3	-	20	15	-	-
Transportation equipment	-	36	-	12	-	124	28	-	-
Other durable goods	-	100	32	20	24	128	80	16	-
Nondurable Goods, Total	-	158	564	20	-	839	279	20	20
Food and kindred products	-	76	64	20	-	120	80	20	20
Paper and allied products	-	-	20	-	-	180	-	-	-
Chemicals and allied products	-	72	480	-	-	504	144	-	-
Petroleum	-	-	-	-	-	-	-	-	-
Other nondurable goods	-	10	-	-	-	35	55	-	-
Total Manufacturing	-	304	604	58	27	1,129	422	36	20
Total, 1965-1985	-	1,298	1,418	279	128	3,818	1,268	151	40

Table 33-A

DISTRIBUTION OF ADDITIONAL NONMANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1965-1970 1/

	A	B	C	D	E	F	G	H	J
Wholesale Trade	-	95	30	15	-	63	47	-	-
Contract Construction	-	26	8	9	-	14	17	22	4
Total	-	121	38	24	-	77	64	22	4

Table 33-B

DISTRIBUTION OF ADDITIONAL NONMANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1970-1975 1/

	A	B	C	D	E	F	G	H	J
Wholesale Trade	-	88	25	12	13	62	50	-	-
Contract Construction	-	24	8	9	4	14	17	20	4
Total	-	112	33	21	17	76	67	20	4

1/ Excludes employees of establishments located in commercial areas. These workers are included in the projections for "employees not elsewhere classified" in Table 59.

Table 33-C

DISTRIBUTION OF ADDITIONAL NONMANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1975-1980[1/]

	A	B	C	D	E	F	G	H	J
Wholesale Trade	-	105	35	17	18	87	88	-	-
Contract Construction	-	60	20	22	10	35	43	50	10
Total	-	165	55	39	28	122	131	50	10

Table 33-D

DISTRIBUTION OF ADDITIONAL NONMANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREA, 1980-1985[1/]

	A	B	C	D	E	F	G	H	J
Wholesale Trade	-	87	28	14	21	95	105	-	-
Contract Construction	-	50	15	17	13	38	55	50	12
Total	-	137	43	31	34	133	160	50	12
Total, 1965-1985	-	535	169	115	79	408	422	142	30

1/ Excludes employees of establishments located in commercial areas. These workers are included in the projections for "employees not elsewhere classified" in Table 59.

The income and expenditures considered have been based on the 1959 income and price levels. Changes in income and price levels due to inflation or deflation have not been considered. Projections to 1985 for per capita income and income consumption patterns are tabulated, by economic areas, in Appendices 2 and 3.

Retail space needs have been separated into three different categories: (1) comparison retail stores (department stores, apparel shops, furniture and appliance stores, and specialty stores), (2) convenience retail stores (food, drug, variety, and hardware), and (3) miscellaneous retail stores (eating and drinking, automotive, service stations, and others).

Existing Retail Land Use

As indicated by a recent survey, the approximate space being used by each category of retail store is as follows: comparison, 18,000 square feet per 1,000 population; convenience, 25,000 square feet per 1,000 population; and miscellaneous, 130,000 square feet per 1,000 population.

However, in the projections of future retail land use needs, the existing percentage of space per 1,000 population will be modified. This modification will be due to the fact that some of the existing establishments will serve portions of the estimated population increase.

Savannah's Central Business District will tend to lose some of its retail dominance because of the increasing tendency to build shopping centers within the heart of the residential sections. This is a general development trend throughout the United States. However, in Savannah, the shopping centers may play a larger role in retail sales than is generally the case because of the city's off-center Central Business District, which results in new residential sections being pushed farther away from the central core. The distance that will have to be traveled to the central core and the customer conveniences and amenities offered by the outlying shopping centers will be determing factors in shaping the pattern for future retail establishments.

However, the continued strength of the Central Business District will lie in its being the largest shopping core in the city, county, and region, thus offering the widest range of merchandise, having a large pedestrian traffic (many from the downtown work force), and attracting people to the governmental, cultural, and entertainment centers and other establishments and businesses located in the core.

Projected Retail Space Requirements

The projection for retail establishments has been distributed throughout the county in all economic areas, as shown in Tables 34, 35, and 36.

Table 34

PROJECTED ADDITIONAL RETAIL SPACE REQUIREMENTS, 1965-1985
(in square feet)

Comparison Goods

Economic Area	1965-1970	1970-1975	1975-1980	1980-1985	Total 1965-1985
A	24,920	61,100	70,200	80,860	237,080
B	16,020	37,600	43,200	49,760	146,580
C	7,120	18,800	21,600	24,880	72,400
D	12,460	32,900	37,800	43,540	126,700
E	-	9,400	10,800	12,440	32,640
F	10,680	28,200	32,400	37,320	108,600
G	17,800	47,000	54,000	62,200	181,000
H	62,300	164,500	189,000	217,700	633,500
J	26,700	70,500	81,000	93,300	271,500
Total	178,000	470,000	540,000	622,000	1,810,000

Table 35

PROJECTED ADDITIONAL RETAIL SPACE REQUIREMENTS, 1965-1985
(in square feet)

Convenience Goods

Economic Area	1965-1970	1970-1975	1975-1980	1980-1985	Total 1965-1985
A	1,602	4,230	4,860	5,598	16,290
B	9,612	16,920	19,440	22,392	68,364
C	4,806	12,690	14,580	16,794	48,870
D	11,214	25,380	29,160	33,588	99,342
E	-	12,690	14,580	16,794	44,064
F	11,214	29,610	34,020	39,186	114,030
G	28,836	76,140	87,480	100,764	293,220
H	64,080	169,200	194,400	223,920	651,600
J	27,234	76,140	87,480	100,764	291,618
Total	158,598	423,000	486,000	559,800	1,627,398

Table 36

PROJECTED ADDITIONAL RETAIL SPACE REQUIREMENTS, 1965-1985
(in square feet)

Miscellaneous Retail

Economic Area	1965-1970	1970-1975	1975-1980	1980-1985	Total 1965-1985
A	9,256	24,400	28,080	32,344	94,080
B	27,768	61,000	70,200	80,860	239,828
C	9,256	24,400	28,080	32,344	94,080
D	32,396	73,200	84,240	97,032	286,868
E	-	36,600	42,120	48,516	127,236
F	32,396	85,400	98,280	113,204	329,280
G	83,304	231,800	266,760	307,268	889,132
H	185,120	488,000	561,600	646,880	1,881,600
J	83,304	195,200	224,640	258,752	761,896
Total	462,800	1,220,000	1,404,000	1,617,200	4,704,000

This distribution has been based largely on the estimated population increases in each economic area. Additional space has been allocated to Area A, Savannah's Central Business District, and Area E, Hunter Air Force Base, based on the assumed development of these areas mentioned previously.

The retail space requirements have been based on the estimated future population increase, allowing an additional 20,000 square feet of comparison retail space per 1,000 persons, 18,000 square feet of convenience retail space per 1,000 persons, and 52,000 square feet of miscellaneous retail space per 1,000 persons. This makes a total of 90,000 square feet of retail space needs for each additional 1,000 persons.

Each type of retail classification mentioned above generally will show distinct locational trends. The comparison retail establishments will tend to locate in areas with a strong regional attraction and good access routes, the convenience retail establishments will tend to locate in areas which are within easy walking or driving distance from residential sections, and the miscellaneous retail establishments will tend to locate along major streets, with location in relation to competitors and ease of access, rather than the population being served, being the deciding factors.

Tables 37 and 38 show the total projected additional retail space (comparison, convenience, and miscellaneous) requirements in acres and the distribution of the estimated future retail employees.

In projecting retail acreage requirements, a parking ratio of 2.5 to 1 appeared to be a reasonable overall parking area to retail floor area ratio

Table 37

PROJECTED ADDITIONAL RETAIL SPACE REQUIREMENTS, 1965-1985
(in acres)

Comparison-Convenience-Miscellaneous

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	1	2	2	3	8
B	3	7	8	9	27
C	1	3	4	4	12
D	3	8	9	10	30
E	-	3	4	4	11
F	3	8	10	11	32
G	7	20	23	27	77
H	18	47	54	62	181
J	8	20	22	26	76
Total Acres (rounded)	44	118	136	156	454

Table 38

DISTRIBUTION OF ADDITIONAL RETAIL EMPLOYEES
BY ECONOMIC AREAS, 1965-1985

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	40	56	60	64	220
B	68	70	75	80	293
C	30	41	43	46	160
D	72	84	90	96	342
E	-	43	45	50	138
F	70	98	118	112	398
G	160	238	253	272	923
H	390	546	578	624	2,138
J	170	224	238	256	888
Total	1,000	1,400	1,500	1,600	5,500

for the three different types of retail establishments. The additional retail acreage needs projected for the 20-year period total 454 acres, of which 44 acres are projected for the 1965-70 period, with an increase to 156 acres for the 1980-85 period.

The estimated retail employee requirements were derived from Table 13, Chapter III.

Office Space Requirements

This section presents projected needs for additional office space in Chatham County to 1985.

The estimate for future demand for office space was based on the estimated future employment or the estimated future population increase for the various categories of office space users. In estimating the future office space demand, ratios between present office users and existing space were first determined for the various categories. The results then were modified to a degree by a more general standard for office space needs per user and carried throughout the study.

The estimated future office space demand has been calculated on the basis of 150 square feet per office employee, 600 square feet per professional practitioner, and four square feet per capita of population for miscellaneous office users. With these results, the space needs were distributed throughout the county within the nine economic areas.

Transportation, Communications, and Utilities Office Space Demand

It was estimated that 5,800 persons were employed in the transportation, communications, and utilities field in 1965. An additional 2,300 persons are expected to be employed in this field by 1985.

It would appear from data on current conditions that approximately 40% of the transportation, communications, and utilities office space demand is located in Economic Area A (Savannah's Central Business District). This trend has been followed in distributing the future office space demand.

Obviously, all additional persons employed in this field will not be office employees. In this study it is assumed that only 30% of the estimated employment increase would be office workers. This would mean that only 690 of the 2,300 additional employees would require office space. Based on a requirement of 150 square feet of space per employee, 103,500 square feet of additional office space have been projected for the next 20-year period. See Table 39 for the periodic distribution in the nine economic areas. The projected distribution of non-office workers in this category and their acreage requirements are given in Tables 40 and 41; these projections are based on 15 employees per acre.

Table 39

PROJECTED DEMANDS FOR ADDITIONAL TRANSPORTATION, COMMUNICATIONS, AND UTILITIES OFFICE SPACE, 1965-1985 (in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	10,800	9,000	9,000	12,600	41,400
B	9,150	7,350	7,350	10,350	34,200
C	1,050	900	900	1,350	4,200
D	2,850	2,550	2,550	3,450	11,400
E	-	300	300	300	900
F	1,350	1,050	1,050	1,650	5,100
G	600	450	450	600	2,100
H	600	450	450	600	2,100
J	600	450	450	600	2,100
Total	27,000	22,500	22,500	31,500	103,500

1/ 150 square feet per employee.

Finance, Insurance, and Real Estate Office Space Demand

An estimated 2,700 persons were employed in this category in Chatham County in 1965. It is estimated by 1985 that an additional 1,800 persons will be employed.

As in the transportation, communications, and utilities category, a major portion of the office employees in finance, insurance, and real estate will be in Savannah's Central Business District.

Table 40

DISTRIBUTION OF ADDITIONAL TRANSPORTATION, COMMUNICATIONS, AND UTILITIES EMPLOYEES NOT ELSEWHERE CLASSIFIED, 1965-1985

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	-	-	15	15	30
B	75	75	75	120	345
C	15	15	15	15	60
D	30	15	15	15	75
E	-	15	15	15	45
F	180	140	140	205	665
G	60	45	45	60	210
H	30	30	15	30	105
J	30	15	15	15	75
Total	420	350	350	490	1,610

Table 41

DISTRIBUTION OF ADDITIONAL TRANSPORTATION, COMMUNICATIONS, AND UTILITIES SPACE REQUIREMENTS NOT ELSEWHERE CLASSIFIED, 1965-1985 (in acres)

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	-	-	1	1	2
B	5	5	5	8	23
C	1	1	1	1	4
D	2	1	1	1	5
E	-	1	1	1	3
F	12	9	9	14	44
G	4	3	3	4	14
H	2	2	1	2	7
J	2	1	1	1	5
Total	28	23	23	33	107

As shown in Table 42, a demand for an additional 270,000 square feet has been projected for the 20-year period between 1965 and 1985.

Table 42

PROJECTED DEMANDS FOR ADDITIONAL FINANCE, INSURANCE, REAL ESTATE OFFICE SPACE, 1965-1985
(in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	30,000	23,850	23,850	29,850	107,550
B	26,100	20,850	20,850	26,100	93,900
C	4,950	3,900	3,900	4,950	17,700
D	9,600	7,650	7,650	9,600	34,500
E	-	300	300	150	750
F	900	600	600	900	3,000
G	450	300	300	300	1,350
H	2,700	2,250	2,250	2,700	9,900
J	300	300	300	450	1,350
Total	75,000	60,000	60,000	75,000	270,000

1/ 150 square feet per employee.

Business Services Office Space Demand

The business services office space category includes such offices as consumer credit agencies, advertising companies, pest control services, janitorial services, and a number of other small business types not elsewhere classified.

The future demand for this type of office space was derived by use of a ratio of 4.2 business service office workers for every 1,000 additional residents projected and the requirement of 150 square feet per employee. It is estimated that by 1985 an additional 380 persons will be employed in this category, using approximately 57,000 square feet of office space.

Table 43 gives the future demand and the distribution of the projected space needs for each economic area.

Table 43

PROJECTED DEMANDS FOR ADDITIONAL BUSINESS SERVICES OFFICE SPACE, 1965-1985 (in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	1,350	2,850	3,300	3,900	11,400
B	1,800	4,500	5,250	5,850	17,400
C	900	2,250	2,550	2,850	8,550
D	300	900	1,050	1,200	3,450
E	-	450	450	600	1,500
F	300	900	1,050	1,200	3,450
G	750	2,100	2,400	2,700	7,950
H	150	450	450	600	1,650
J	150	450	450	600	1,650
Total	5,700	14,850	16,950	19,500	57,000

1/ 150 square feet per employee.

Dental, Medical, and Legal Office Space Demand

This portion of the office space section is limited to the three major professional practitioners: dentists, medical doctors, and attorneys. Other professional practitioners, such as engineers, osteopaths, and other such office space users, are included in the miscellaneous office space category.

Dentists. At the present time there are approximately 60 dentists serving Chatham County. This represents a ratio of about .30 dentists per 1,000 residents. Although a relatively low ratio, it may well speak more for healthy environmental conditions rather than the lack of adequate dental services.

Table 44 shows the projected demand and the distribution of this demand. A ratio of one dentist per 3,000 persons has been used for the projected future demand, with each practitioner needing 600 square feet of office space. This would indicate that Chatham County will need an additional 30 dentists using 18,000 square feet of office space by 1985.

Medical Doctors. There are approximately 160 medical doctors serving the population of Chatham County at the present time, a ratio of about .80 medical

Table 44

PROJECTED DEMANDS FOR ADDITIONAL DENTAL OFFICE SPACE, 1965-1985
(in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	600	600	600	600	2,400
B	600	600	600	600	2,400
C	-	-	-	-	-
D	-	600	600	600	1,800
E	-	600	600	600	1,800
F	-	600	600	600	1,800
G	-	600	600	600	1,800
H	600	1,200	1,200	1,800	4,800
J	-	-	600	600	1,200
Total	1,800	4,800	5,400	6,000	18,000

1/ Based on 600 square feet per practitioner with one practitioner serving approximately 3,000 persons.

doctors per 1,000 residents. This is a relatively low ratio for medical doctors, but like the dental ratio, it may indicate a healthy environment rather than inadequate medical services.

Table 45 shows the projected demand and the distribution of this demand. A ratio of one medical doctor per 1,200 persons has been used for projecting

Table 45

PROJECTED DEMANDS FOR ADDITIONAL
MEDICAL SERVICES OFFICE SPACE, 1965-1985
(in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	1,200	1,200	1,200	1,800	5,400
B	1,200	2,400	2,400	2,400	8,400
C	-	-	-	-	-
D	-	1,200	1,800	2,400	5,400
E	-	1,200	1,800	3,000	6,000
F	-	1,200	1,200	1,200	3,600
G	-	1,200	1,200	1,200	3,600
H	1,800	3,600	3,000	2,400	10,800
J	-	-	1,200	1,200	2,400
Total	4,200	12,000	13,800	15,600	45,600

1/ Based on 600 square feet per practitioner with one practitioner serving approximately 1,200 persons.

the future demand, with each practitioner estimated as needing 600 square feet of office space. This would indicate that Chatham County will need an additional 76 medical doctors using 45,600 square feet of office space by 1985.

Attorneys. At the present time there are approximately 200 attorneys in Chatham County. This represents a ratio of one attorney for each 1,000 persons, which is not considered a low ratio in calculating future demand for attorneys. On this basis, a projected future demand ratio of one attorney for each 1,500 additional persons has been used, with each practitioner requiring 600 square feet of office space.

Table 46 shows the demand for additional space and the distribution of this demand. Because the activities of the legal profession require close proximity to other attorneys and courts, the majority of the projected demand has been distributed in or near Savannah's Central Business District.

Table 46

PROJECTED DEMANDS FOR ADDITIONAL LEGAL OFFICE SPACE, 1965-1985
(in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	1,200	3,000	3,000	3,600	10,800
B	1,200	2,400	2,400	3,000	9,000
C	-	1,200	1,800	1,800	4,800
D	1,200	1,200	1,200	1,800	5,400
E	-	-	-	-	-
F	-	600	600	600	1,800
G	-	600	600	600	1,800
H	-	600	600	600	1,800
J	-	-	600	600	1,200
Total	3,600	9,600	10,800	12,600	36,600

1/ Based on 600 square feet per practitioner with one practitioner serving approximately 1,500 persons.

Government Office Space Demand

The employment in federal, state, and local government service is predicted to increase by 3,000 persons by 1985. The decrease in federal employment to result from the closing of Hunter Air Force Base during the 1965-70 period has been taken into account in figuring this 3,000 increase.

Only 50% of these additional employees are projected as office workers. During the 20-year period between 1965 and 1985, 1,500 government office employees are projected, with each employee estimated as requiring 150 square feet of office space.

Table 47 shows the demand and distribution of this demand. The majority of the additional employees are expected to be located within or near Savannah's Central Business District. The projected distribution of non-office government workers and their acreage requirements are presented in Tables 48 and 49; these figures are based on 30 employees per acre.

Table 47

PROJECTED DEMANDS FOR ADDITIONAL GOVERNMENT OFFICE SPACE, 1965-1985 (in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	19,050	21,000	24,000	33,000	97,050
B	17,700	15,600	18,000	24,750	76,050
C	450	600	600	750	2,400
D	7,650	3,150	3,000	4,200	18,000
E	- 2/	2,700	3,600	4,950	11,250
F	9,450	5,250	5,400	8,250	28,350
G	3,750	1,050	1,800	1,650	8,250
H	3,150	2,100	2,400	3,300	10,950
J	2,550	1,050	1,200	1,650	6,450
Total	63,750	52,500	60,000	82,500	258,750

1/ 150 square feet per office employee.

2/ Space lost at Hunter Air Force Base ignored for purposes of this table.

Miscellaneous Office Space Demand

In addition to the above-mentioned office space users, persons in various other types of occupations and professions also require office space.

This section on miscellaneous office space demand is designed to classify those people not elsewhere classified, such as engineers, certified public accountants, osteopaths, chiropractors, and several other such groups.

Table 48

PROJECTED ADDITIONAL GOVERNMENT EMPLOYEES
NOT ELSEWHERE CLASSIFIED, 1965-1985

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	84	30	30	60	204
B	127	85	85	112	409
C	-	-	-	29	29
D	68	30	58	59	215
E	-225 1/	29	28	29	-139
F	60	59	58	59	236
G	26	29	28	59	142
H	43	59	84	85	271
J	17	29	29	58	133
Total	200	350	400	550	1,500

1/ Part of loss at Hunter Air Force Base.

Table 49

PROJECTED ADDITIONAL GOVERNMENT SPACE REQUIREMENTS
NOT ELSEWHERE CLASSIFIED, 1965-1985
(in acres)

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	2	1	1	2	6
B	4	3	3	4	14
C	-	-	-	1	1
D	2	1	2	2	7
E	- 1/	1	1	1	3
F	2	2	2	2	8
G	1	1	1	2	5
H	2	2	3	3	10
J	1	1	1	2	5
Total	14	12	14	19	59

1/ Space lost at Hunter Air Force Base ignored for purposes of this table.

At the present time it has been estimated that approximately five square feet of miscellaneous office space per capita of population is being used in Chatham County. However, for the projected future demand, four square feet per capita of population increase appears to be a more realistic projection.

Table 50 shows the demand for additional space and the distribution of this demand through 1985.

Table 50

PROJECTED DEMANDS FOR ADDITIONAL MISCELLANEOUS OFFICE SPACE, 1965-1985 (in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	10,680	28,200	32,400	37,320	108,600
B	6,408	16,920	19,440	22,392	65,160
C	712	1,880	2,160	2,488	7,240
D	2,848	7,520	8,640	9,952	28,960
E	712	1,880	2,160	2,488	7,240
F	2,136	5,640	6,480	7,464	21,720
G	3,204	8,460	9,720	11,196	32,580
H	7,120	18,800	21,600	24,880	72,400
J	1,780	4,700	5,400	6,220	18,100
Total	35,600	94,000	108,000	124,400	362,000

1/ Based on four square feet per capita of population increase.

Summary of Office Space Requirements

As shown in Table 51, "Summary of Requirements for Additional Office Space," the demand for additional office space in Chatham County can be expected to total approximately 1,151,450 square feet by 1985. Of this amount, 378,850 square feet, or 33%, has been projected for Savannah's Central Business District.

Table 51

SUMMARY OF REQUIREMENTS FOR ADDITIONAL OFFICE SPACE, 1965-1985 (in square feet)

	1965-70	1970-75	1975-80	1980-85	Total 1965-85
Transportation, Communications, Utilities	27,000	22,500	22,500	31,500	103,500
Finance, Insurance, and Real Estate	75,000	60,000	60,000	75,000	270,000
Business Services	5,700	14,850	16,950	19,500	57,000
Dentists	1,800	4,800	5,400	6,000	18,000
Medical Doctors	4,200	12,000	13,800	15,600	45,600
Attorneys	3,600	9,600	10,800	12,600	36,600
Government	63,750	52,500	60,000	82,500	258,750
Miscellaneous	35,600	94,000	108,000	124,400	362,000
Total	216,650	270,250	297,450	367,100	1,151,450

Other Land Use Demands

Personal Services Space Demand

In this category such land uses as barber shops, beauty shops, cleaning services, laundries, shoe repair shops, and other such miscellaneous personal services are covered.

At the present time, personal services land use totals approximately 3,400 square feet per 1,000 persons in Chatham County. For the purpose of this study, the projected demand has been based on 3,300 square feet of personal services space per 1,000 persons.

As shown in Table 52, an additional 298,650 square feet of personal services space will be required during the next 20-year period.

Table 52

PERIODIC DISTRIBUTION OF ADDITIONAL
PERSONAL SERVICES SPACE NEEDS, 1965-1985
(in square feet)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	5,875	15,510	17,820	20,526	59,731
B	1,174	3,102	3,564	4,105	11,945
C	881	2,327	2,673	3,079	8,960
D	1,174	3,102	3,564	4,105	11,945
E	881	2,327	2,673	3,079	8,960
F	1,469	3,877	4,455	5,131	14,932
G	3,819	10,081	11,583	13,342	38,825
H	9,398	24,816	28,512	32,842	95,568
J	4,699	12,408	14,256	16,421	47,784
Total	29,370	77,550	89,100	102,630	298,650

1/ 3,300 square feet per 1,000 additional population.

Motel and Hotel Space Demand

Several different factors affect the demand for transient lodging facilities in any community. In the Savannah area, major factors affecting this demand are the community's tourist attractions, local business activities, and anticipated transient traffic.

In future years, the area's tourist industry can be expected to increase, and the impact of the proposed convention center and Interstate Highways 16 and 95 will create an additional demand on motel and hotel facilities.

At the present time, Chatham County has over 10 units per 1,000 population. Based on the existing facilities and the area's tourist potential, an additional 900 units have been projected for the 20-year period between 1965 and 1985.

The land area that is required for motels and hotels varies widely and is dictated by local conditions. A ratio of 30 units per acre in Savannah's Central Business District and 20 units per acre in the outlying areas was used for calculating purposes in this study.

Table 53 shows the projected demand for additional units and acres and the periodic distribution of this demand.

Table 53

PROJECTED ADDITIONAL MOTEL AND HOTEL REQUIREMENTS, 1965-1985

Units

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	-	-	-	-	-
B	100	110	110	-	320
C	-	-	-	-	-
D	-	-	-	-	-
E	-	-	-	-	-
F	-	-	100	100	200
G	-	110	110	110	330
H	-	50	-	-	50
J	-	-	-	-	-
Total Units	100	270	320	210	900

(continued)

Table 53 (continued)

Acres[1/]

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	-	3.6	3.6	-	7.2
B	5.0	-	-	-	5.0
C	-	-	-	-	-
D	-	-	-	-	-
E	-	-	-	-	-
F	-	-	5.0	5.0	10.0
G	-	5.5	5.5	5.5	16.5
H	-	2.5	-	-	2.5
J	-	-	-	-	-
Total Acres	5.0	11.6	14.1	10.5	41.2

1/ Based on 30 units per acre for Area A and 20 units per acre for Areas B-J.

Hospital Beds and Space Demand

There are currently some 1,063 hospital beds in the nine hospitals serving the Savannah-Chatham County area. This figure does not include St. Joseph's proposed new 200-bed hospital. (See Table 54.)

Table 54

EXISTING HOSPITALS IN CHATHAM COUNTY

Name of Hospital	Number of Beds
St. Joseph's (present site)	114
(new site)	200
Warren Candler	154
Candler-Telfair	44
Candler-Central	67
Oglethorpe Sanitarium	50
Georgia Infirmary	60
Charity	75
Memorial	299
Hunter	200
Total Beds	1,263

At the present time, the 1,063 beds represent a population service ratio of about 5.3 beds per 1,000 residents. The U. S. Public Health Service recommended total bed ratio per 1,000 persons is 7.52. It will be assumed that the ratio of beds to 1,000 population in Savannah area could be expected to increase in future years. For planning purposes, the U. S. Public Health service ratio of 7.52 beds per 1,000 persons will be used to give the indication of the possible extent of the increased bed requirements that could be expected.

Tables 55 and 56 show that 680 additional beds, using approximately 42.5 acres, will be required during the 20-year period between 1965 and 1985. This

Table 55

PROJECTED HOSPITAL BED DEMAND AND ACRES REQUIRED, 1965-1985

	1965-70	1970-75	1975-80	1980-85	Total 1965-85
Population Increase	8,900	23,500	27,000	31,100	90,500
Bed Demand 1/	66.9	176.7	203.0	233.8	680.4
Acre Requirements 2/	4.2	11.0	12.7	14.6	42.5

1/ 7.52 beds per 1,000 persons.

2/ .0625 acres per bed.

Table 56

PERIODIC DISTRIBUTION OF ADDITIONAL HOSPITAL BEDS 1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	-	-	-	-	-
B	40	50	30	20	140
C	-	-	-	-	-
D	20	30	50	60	160
E	-	-	-	-	-
F	-	5	10	10	25
G	-	5	10	10	25
H	10	90	95	120	315
J	-	-	5	10	15
Total	70	180	200	230	680

1/ Figures rounded.

demand is based on the projected population increase and does not consider the existing ratio of beds per 1,000 persons.

Institutional Space Demand

The broad classification public and quasi-public institutions includes such space as airports, public and private schools, churches, clubs, and other institutions, except hospitals.

At the present time, approximately two acres per 100 population are devoted to these institutions in Savannah and Chatham County. As shown in Table 57, the institutional space demand has been projected on a ratio of one acre per 100 population increase. This is based on the theory that the existing facilities will absorb part of the population increase and the future demand for institutional space will not need to be projected on the basis of the existing ratio.

Table 57

PROJECTED ADDITIONAL INSTITUTIONAL SPACE REQUIREMENTS, 1965-1985
(in acres)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	-	-	-	-	-
B	5	10	12	14	41
C	3	6	7	8	24
D	6	14	16	18	54
E	-	4	6	7	17
F	6	13	15	20	54
G	14	40	45	53	152
H	37	100	115	128	380
J	18	48	54	62	182
Total	89	235	270	310	904

1/ One acre per 100 persons.

The Hunter study projection of approximately 1,100 acres for institutional use was not evaluated in this study. During the early stages of the phasing out of military activities at Hunter Air Force Base, the final plans for civilian use of the area cannot be foreseen. However, a certain amount of institutional land use was projected for Economic Area E to supply the needs of the projected population of the area.

Schools. This study will not attempt to project elementary and high school space needs for the 20-year period between 1965 and 1985. The closing of Hunter Air Force Base, which will decrease the school enrollment by approximately 2,000 pupils, will partially offset the student increase resulting from the normal population increase during the first few years of this period.

This does not mean that educational space demand will remain static as it exists today. During this period certain schools will become obsolete through age and possibly through a shift of school-age children from one area to another or through the encroachment of non-compatible land uses, such as industrial plants.

At such time that the impact of Hunter Air Force Base closing can be determined, the educational needs of Chatham County will need to be restudied.

Commercial Recreation Space Demand

At the present time, there are approximately three acres of commercial recreation land use per 1,000 population. As shown in Table 58, the ratio of

Table 58

PROJECTED ADDITIONAL COMMERCIAL RECREATION SPACE NEEDS, 1965-1985
(in acres)1/

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	-	2	2	2	6
B	2	2	3	5	12
C	1	1	2	3	7
D	2	3	4	5	14
E	-	1	2	2	5
F	3	5	7	9	24
G	6	12	16	18	52
H	16	54	56	60	186
J	6	14	16	20	56
Total	36	94	108	124	362

1/ Four acres per 1,000 persons.

four acres per 1,000 population increase has been projected. This higher ratio was based on the trend toward a shorter work week and more leisure time per person.

The projected commercial recreation demand has been based on such high-density land use as bowling alleys and theaters, particularly drive-in theaters. Some consideration also was given to the development of marinas for commercial recreation.

Public recreational land uses have not been calculated in this study.

Projected Employees Not Elsewhere Classified

Table 59 shows the distribution of additional employees not elsewhere classified who will be needed over the 20-year period. Included in the projections are workers in the following categories: (1) that part of wholesale trade in nonindustrial areas, (2) that part of contract construction in nonindustrial areas, (3) miscellaneous office employment, (4) personal services, (5) motels and hotels, (6) hospitals, (7) institutions (except public schools, employees of which are included in government), and (8) commercial recreation. Projections for business services employees, dentists, doctors, and attorneys have been made elsewhere in this report.

Table 59

PROJECTED ADDITIONAL EMPLOYEES NOT ELSEWHERE CLASSIFIED,[1/] 1965-1985

Economic Area	1965-70	1970-75	1975-80	1980-85	Total 1965-85
A	319	321	407	462	1,509
B	207	209	265	301	982
C	64	64	81	92	301
D	111	112	142	162	527
E	32	32	40	46	150
F	147	148	186	210	691
G	223	224	285	324	1,056
H	350	353	448	509	1,660
J	143	144	183	207	677
Total	1,596	1,607	2,037	2,313	7,553

1/ Includes portions of wholesale trade, contract construction, and services employees (miscellaneous services, personal services, motels and hotels, hospitals, institutions, commercial recreation).

PASSENGER CAR OWNERSHIP

Recent studies of consumer expenditures have shown that there is a strong relationship between car ownership and income level -- a relationship which has been emphasized by the growth of the two-car and three-car family. Data on automobiles were not collected in censuses prior to 1960, but figures are available from the 1960 Census of Housing giving "the number of passenger automobiles, including station wagons, owned or regularly used by any of the occupants of the housing unit."

The local pattern of car ownership in Chatham County was established by relating the automobile count per capita to the income level for each Census Tract. It was then possible to estimate the future car ownership by economic areas by using the projections of population and income already made during the course of this study.

Table 60 summarizes the results of these calculations, showing an estimated 136,800 passenger cars in Chatham County by 1985 -- more than twice the estimated figure of 67,200 in 1965 and an increase of 135% over the number of passenger car tag sales made in the county in 1960.

Table 60

ESTIMATED PASSENGER CAR OWNERSHIP IN CHATHAM COUNTY

In Households[1/] Economic Area	1960	1965	1970	1975	1980	1985
A	1,075	1,300	1,825	2,200	2,400	2,475
B	11,725	11,675	14,250	17,125	20,150	23,400
C	7,350	8,225	9,300	9,825	14,425	11,075
D	11,000	12,100	13,325	14,250	15,650	16,825
E	625	650	750	800	825	850
F	4,125	5,000	5,525	6,350	7,325	8,250
G	4,125	4,900	6,200	7,925	10,375	13,100
H	8,750	11,600	13,900	18,150	23,675	29,650
J	975	2,125	3,375	5,375	7,775	10,625
	49,750	57,575	68,450	82,000	98,600	116,250
Other[2/]	8,313	9,625	12,050	14,500	17,400	20,550
	58,038[3/]	67,200	80,500	96,500	116,000	136,800

1/ Figures for 1960 are based on data from U. S. Censuses of Population and Housing (Census Tracts - Savannah). The category includes company cars regularly used and kept at home. Projections are based on the relationship between car ownership and income (as derived from the Census) applied to the projected income and population figures for the economic areas.

2/ Cars owned by governments, individuals living in institutions, businesses, and cars scrapped during year. For the U. S. as a whole this category has been estimated by various surveys at percentages varying between 19% and 23% of total registrations. In Chatham County in 1960 this category was estimated at 14.3% of total registrations. A slight increase (reaching about 15%) was used in these projections.

3/ Total passenger car tag sales for Chatham County, calendar year 1960.

APPENDICES

Appendix 1

POPULATION BY ECONOMIC AREAS THROUGH 1985

	1960	1965	1970	1975	1980	1985
A	6,516	6,500	6,500	6,500	6,500	6,500
B	66,315	61,400	62,000	63,400	65,000	66,850
C	23,645	24,200	24,500	25,200	26,050	27,000
D	31,542	32,700	33,300	34,750	36,400	38,250
E 1/	3,566	3,550	2,000	2,000	2,000	2,000
F	14,060	15,150	15,800	17,200	18,800	20,650
G	15,834	18,800	20,700	24,800	29,650	35,400
H	23,544	30,550	34,750	44,250	55,050	67,400
J	3,277	6,650	8,850	13,800	19,450	25,950
	188,299	199,500	208,400	231,900	258,900	290,000

1/ Hunter Air Force Base: For the purposes of this study it has been assumed that once the military have moved out, the family housing will be used for other residents in connection with new developments on the base.

Appendix 2

PER CAPITA INCOME[1/] BY ECONOMIC AREAS THROUGH 1985
(in 1959 constant dollars)

	1960	1965	1970	1975	1980	1985
A	1,592	1,841	2,184	2,418	2,663	2,917
B	1,275	1,506	1,741	1,927	2,129	2,394
C	2,087	2,491	2,886	3,211	3,531	3,840
D	2,408	2,880	3,358	3,719	4,070	4,415
E	2,295	2,744	3,040	3,370	3,783	4,171
F	1,857	2,211	2,561	2,847	3,127	3,426
G	1,423	1,686	1,971	2,162	2,377	2,673
H	2,462	2,946	3,394	3,759	4,101	4,450
J	2,007	2,394	2,753	3,039	3,369	3,650

1/ Total personal income before payment of taxes.

Appendix 3-A

INCOME CONSUMPTION PATTERNS IN THE SAVANNAH METROPOLITAN AREA BY ECONOMIC AREAS, 1960
(in 1959 constant dollars)

	A	B	C	D	E 1/	F	G	H	J
Average expenditure for current consumption per family and unrelated individual	2,903	3,309	5,374	5,905	3,706	5,307	4,322	6,315	4,817
Food, liquor, tobacco	905	920	1,424	1,512	1,030	1,407	1,189	1,617	1,330
Housing, including utilities	616	612	871	986	686	860	747	1,048	829
Household operations, furniture and equipment	309	394	656	679	441	647	488	739	544
Clothing and accessories	255	324	586	626	363	578	462	676	515
Personal care	107	116	188	199	130	186	143	202	159
Medical care	244	232	349	390	259	345	277	417	308
Recreation	78	116	179	248	130	175	156	272	173
Transportation, including vehicles	293	476	965	1,033	534	955	713	1,092	795
Other	96	119	156	232	133	154	147	252	164

1/ Hunter Air Force Base: These estimates include the value of payments in kind -- food, housing, clothing, medical care, etc.

Appendix 3-B

INCOME CONSUMPTION PATTERNS IN THE SAVANNAH METROPOLITAN AREA BY ECONOMIC AREAS, 1965
(in 1959 constant dollars)

	A	B	C	D	E 1/	F	G	H	J
Average expenditure for current consumption per family and unrelated individual	3,467	3,952	6,418	7,052	4,426	6,338	5,161	7,542	5,752
Food, liquor, tobacco	964	1,089	1,644	1,798	1,223	1,623	1,368	1,923	1,473
Housing, including utilities	641	682	1,065	1,135	761	1,052	836	1,214	961
Household operations, furniture and equipment	413	447	751	882	500	742	630	943	664
Clothing and accessories	340	423	687	790	474	678	563	845	610
Personal care	121	130	205	226	146	203	181	241	194
Medical care	245	253	424	437	283	418	335	468	380
Recreation	121	142	276	324	159	273	178	347	242
Transportation, including vehicles	499	652	1,110	1,171	730	1,096	920	1,252	1,007
Other	123	134	256	289	150	253	150	309	221

1/ Hunter Air Force Base: These estimates include the value of payments in kind -- food, housing, clothing, medical care, etc.

Appendix 3-C

INCOME CONSUMPTION PATTERNS IN THE SAVANNAH METROPOLITAN AREA BY ECONOMIC AREAS, 1970
(in 1959 constant dollars)

	A	B	C	D	E	F	G	H	J
Average expenditure for current consumption per family and unrelated individual	3,870	4,411	7,164	7,871	6,500	7,075	5,761	8,323	6,361
Food, liquor, tobacco	1,072	1,217	1,827	2,015	1,657	1,811	1,475	2,020	1,628
Housing, including utilities	693	759	1,153	1,244	1,040	1,139	962	1,282	1,056
Household operations, furniture and equipment	449	498	896	992	813	870	663	1,099	744
Clothing and accessories	395	472	802	889	731	785	611	974	681
Personal care	132	146	229	252	208	226	194	262	204
Medical care	259	282	444	488	403	446	380	512	420
Recreation	138	159	330	362	299	318	242	416	274
Transportation, including vehicles	596	728	1,189	1,307	1,079	1,196	1,008	1,352	1,100
Other	136	150	294	322	270	284	226	406	254

Appendix 3-D

INCOME CONSUMPTION PATTERNS IN THE SAVANNAH METROPOLITAN AREA BY ECONOMIC AREAS, 1975
(in 1959 constant dollars)

	A	B	C	D	E	F	G	H	J
Average expenditure for current consumption per family and unrelated individual	4,150	4,730	7,682	8,287	7,044	7,586	6,177	8,606	6,885
Food, liquor, tobacco	1,145	1,306	1,967	2,012	1,805	1,942	1,581	2,061	1,770
Housing, including utilities	714	814	1,214	1,276	1,133	1,199	1,032	1,325	1,122
Household operations, furniture and equipment	469	534	968	1,094	866	956	710	1,136	826
Clothing and accessories	444	506	868	970	781	857	654	1,007	754
Personal care	137	156	246	261	225	243	198	271	220
Medical care	266	303	476	510	444	470	407	529	441
Recreation	149	170	353	414	317	349	259	430	303
Transportation, including vehicles	685	780	1,275	1,346	1,190	1,259	1,081	1,398	1,167
Other	141	161	315	404	283	311	255	449	282

Appendix 3-E

INCOME CONSUMPTION PATTERNS IN THE SAVANNAH METROPOLITAN AREA BY ECONOMIC AREAS, 1980
(in 1959 constant dollars)

	A	B	C	D	E	F	G	H	J
Average expenditure for current consumption per family and unrelated individual	4,442	5,063	8,223	8,871	7,540	8,121	6,612	9,076	7,300
Food, liquor, tobacco	1,226	1,342	1,997	2,100	1,930	1,975	1,693	2,115	1,869
Housing, including utilities	764	820	1,267	1,366	1,194	1,253	1,078	1,380	1,153
Household operations, furniture and equipment	502	618	1,086	1,176	952	1,071	793	1,216	920
Clothing and accessories	475	552	964	1,038	853	954	721	1,090	825
Personal care	147	177	259	279	242	257	212	281	234
Medical care	284	329	507	546	463	502	423	554	453
Recreation	160	167	411	452	348	407	291	472	336
Transportation, including vehicles	733	911	1,336	1,452	1,253	1,322	1,131	1,469	1,212
Other	151	147	394	462	305	380	270	499	298

Appendix 3-F

INCOME CONSUMPTION PATTERNS IN THE SAVANNAH METROPOLITAN AREA BY ECONOMIC AREAS, 1985
(in 1959 constant dollars)

	A	B	C	D	E	F	G	H	J
Average expenditure for current consumption per family and unrelated individual	4,866	5,546	9,006	9,716	8,160	8,894	7,242	10,165	8,072
Food, liquor, tobacco	1,346	1,453	2,096	2,157	1,985	2,107	1,854	2,236	1,965
Housing, including utilities	837	910	1,370	1,457	1,259	1,369	1,143	1,525	1,246
Household operations, furniture and equipment	549	666	1,206	1,345	1,076	1,179	912	1,423	1,065
Clothing and accessories	520	599	1,081	1,176	958	1,040	818	1,230	949
Personal care	160	189	280	306	258	280	232	315	255
Medical care	311	360	550	593	505	547	450	620	499
Recreation	175	200	469	525	409	453	333	549	405
Transportation, including vehicles	803	987	1,457	1,545	1,328	1,456	1,204	1,626	1,315
Other	165	182	497	612	382	463	296	641	373

Appendix 4-A

PROJECTIONS OF NONAGRICULTURAL EMPLOYMENT BY MAJOR INDUSTRIAL CATEGORIES, BY ECONOMIC AREAS, 1970

	A	B	C	D	E	F	G	H	J
Total	15,886	15,611	3,645	5,240	232	14,533	2,990	3,123	640
Contract construction (part)1/	500	1,136	118	299	-	334	377	522	14
Manufacturing	620	1,793	1,599	354	-	10,884	1,130	100	20
Transportation, communications, utilities	2,372	3,086	112	129	-	479	154	34	34
Wholesale trade (part)1/	700	1,745	200	55	-	403	147	-	-
Retail trade	3,770	2,608	560	1,422	-	640	330	870	300
Finance, insurance, real estate	1,920	644	213	314	-	16	3	88	2
Services and miscellaneous1/	3,153	2,954	340	1,028	32	384	398	655	206
Government	2,851	1,645	503	1,639	200	1,393	451	854	64

1/ In the contract construction and wholesale categories the 1965-85 increase in employees includes only those workers in industrial areas. The increase in construction and wholesale employees working in commercial areas is included under services and miscellaneous.

Appendix 4-B

PROJECTIONS OF NONAGRICULTURAL EMPLOYMENT BY MAJOR INDUSTRIAL CATEGORIES, BY ECONOMIC AREAS, 1975

	A	B	C	D	E	F	G	H	J
Total	16,679	16,885	4,127	5,685	461	16,040	3,923	4,221	1,079
Contract construction (part)1/	500	1,160	126	308	4	348	394	542	18
Manufacturing	620	2,185	1,875	437	65	11,814	1,430	146	28
Transportation, communications, utilities	2,432	3,210	133	161	17	626	202	67	52
Wholesale trade (part)1/	700	1,833	225	67	13	465	197	-	-
Retail trade	3,826	2,678	601	1,506	43	738	568	1,416	524
Finance, insurance, real estate	2,079	783	239	365	2	20	5	103	4
Services and miscellaneous1/	3,501	3,202	421	1,151	70	542	640	1,020	353
Government	3,021	1,834	507	1,690	247	1,487	487	927	100

1/ In the contract construction and wholesale categories the 1965-85 increase in employees includes only those workers in industrial areas. The increase in construction and wholesale employees working in commercial areas is included under services and miscellaneous.

Appendix 4-C

PROJECTIONS OF NONAGRICULTURAL EMPLOYMENT BY MAJOR INDUSTRIAL CATEGORIES, BY ECONOMIC AREAS, 1980

	A	B	C	D	E	F	G	H	J
Total	17,600	18,231	4,756	6,214	688	17,797	5,048	5,480	1,586
Contract construction (part) 1/	500	1,220	146	330	14	383	437	592	28
Manufacturing	620	2,514	2,254	521	101	12,889	1,776	185	40
Transportation, communications, utilities	2,507	3,334	154	193	34	773	250	85	70
Wholesale trade (part) 1/	700	1,938	260	84	31	552	285	-	-
Retail trade	3,886	2,753	644	1,596	88	856	821	1,994	762
Finance, insurance, real estate	2,238	922	265	416	4	24	7	118	6
Services and miscellaneous 1/	3,938	3,511	522	1,306	117	739	945	1,479	543
Government	3,211	2,039	511	1,768	299	1,581	527	1,027	137

1/ In the contract construction and wholesale categories the 1965-85 increase in employees includes only those workers in industrial areas. The increase in construction and wholesale employees working in commercial areas is included under services and miscellaneous.

Appendix 4-D

PROJECTIONS OF NONAGRICULTURAL EMPLOYMENT BY MAJOR INDUSTRIAL CATEGORIES, BY ECONOMIC AREAS, 1985

	A	B	C	D	E	F	G	H	J
Total	18,740	19,742	5,654	6,766	935	19,729	6,384	6,870	2,180
Contract construction (part)1/	500	1,270	161	347	27	421	492	642	40
Manufacturing	620	2,818	2,858	579	128	14,018	2,198	221	60
Transportation, communications, utilities	2,606	3,523	178	231	51	989	314	119	89
Wholesale trade (part)1/	700	2,025	288	98	52	647	390	-	-
Retail trade	3,950	2,833	690	1,692	138	968	1,093	2,618	1,018
Finance, insurance, real estate	2,437	1,096	298	480	5	30	9	136	9
Services and miscellaneous1/	4,436	3,861	636	1,484	173	961	1,291	2,000	758
Government	3,491	2,316	545	1,855	361	1,695	597	1,134	206

1/ In the contract construction and wholesale categories the 1965-85 increase in employees includes only those workers in industrial areas. The increase in construction and wholesale employees working in commercial areas is included under services and miscellaneous.

Appendix 5-A

PROJECTIONS OF MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREAS, 1970

	A	B	C	D	E	F	G	H	J
Total Manufacturing	620	1,793	1,599	354	-	10,884	1,130	100	20
Durable Goods	30	926	258	194	-	3,164	388	40	-
Lumber and wood products	-	136	76	88	-	1,014	186	-	-
Transportation equipment	-	210	-	-	-	1,666	24	-	-
Other durable goods	30	580	182	106	-	484	178	40	-
Nondurable Goods	590	867	1,341	160	-	7,720	742	60	20
Food and kindred products	30	630	490	160	-	1,020	490	60	20
Paper and allied products	20	-	70	-	-	5,610	-	-	-
Chemicals and allied products	200	117	541	-	-	490	252	-	-
Petroleum	-	-	-	-	-	600	-	-	-
Other nondurable goods	340	120	240	-	-	-	-	-	-

Appendix 5-B

PROJECTIONS OF MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREAS, 1975

	A	B	C	D	E	F	G	H	J
Total Manufacturing	620	2,185	1,875	437	65	11,814	1,430	146	28
Durable Goods	30	1,262	356	257	65	3,640	614	76	-
Lumber and wood products	-	151	84	97	5	1,049	214	-	-
Transportation equipment	-	279	-	-	15	1,846	60	-	-
Other durable goods	30	832	272	160	45	745	340	76	-
Nondurable Goods	590	923	1,519	180	-	8,174	816	70	28
Food and kindred products	30	668	518	180	-	1,078	528	70	28
Paper and allied products	20	-	100	-	-	5,880	-	-	-
Chemicals and allied products	200	135	661	-	-	616	288	-	-
Petroleum	-	-	-	-	-	600	-	-	-
Other nondurable goods	340	120	240	-	-	-	-	-	-

Appendix 5-C

PROJECTIONS OF MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREAS, 1980

	A	B	C	D	E	F	G	H	J
Total Manufacturing	620	2,514	2,254	521	101	12,889	1,776	185	40
Durable Goods	30	1,488	423	311	101	3,971	776	100	-
Lumber and wood products	-	163	91	105	11	1,086	244	-	-
Transportation equipment	-	325	-	10	15	1,966	84	-	-
Other durable goods	30	1,000	332	196	75	919	448	100	-
Nondurable Goods	590	1,026	1,831	210	-	8,918	1,000	85	40
Food and kindred products	30	725	560	210	-	1,165	585	85	40
Paper and allied products	20	-	130	-	-	6,150	-	-	-
Chemicals and allied products	200	171	901	-	-	868	360	-	-
Petroleum	-	-	-	-	-	700	-	-	-
Other nondurable goods	340	130	240	-	-	35	55	-	-

Appendix 5-D

PROJECTIONS OF MANUFACTURING EMPLOYMENT BY MAJOR CATEGORIES, BY ECONOMIC AREAS, 1985

	A	B	C	D	E	F	G	H	J
Total Manufacturing	620	2,818	2,858	579	128	14,018	2,198	221	60
Durable Goods	30	1,634	463	349	128	4,261	919	116	-
Lumber and wood products	-	173	99	111	14	1,124	279	-	-
Transportation equipment	-	361	-	22	15	2,090	112	-	-
Other durable goods	30	1,100	364	216	99	1,047	528	116	-
Nondurable Goods	590	1,184	2,395	230	-	9,757	1,279	105	60
Food and kindred products	30	801	624	230	-	1,285	665	105	60
Paper and allied products	20	-	150	-	-	6,330	-	-	-
Chemicals and allied products	200	243	1,381	-	-	1,372	504	-	-
Petroleum	-	-	-	-	-	700	-	-	-
Other nondurable goods	340	140	240	-	-	70	110	-	-